

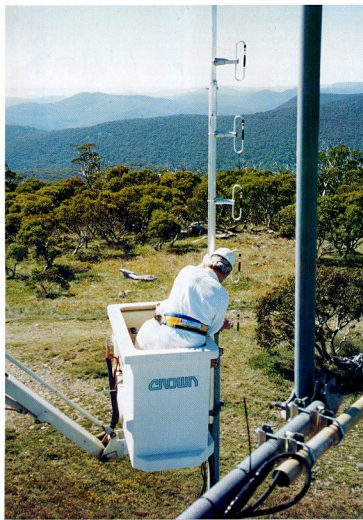
Amateur Radio

October 1997

Volume 65 No 10



Journal of the Wireless Institute of Australia



IN THIS ISSUE:

- * A Home-Brew HF Balun
- * Receive SSB on Your Shortwave AM Radio
- * Parallel Resistance Formula & Chart
- * Producing an Amateur News Broadcast

Plus

lots of amateur radio news, information, other articles and special interest columns.

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Cover

Gil VK1GH and Paul VK1BX (partially hidden) were part of a VK1 Division team who recently erected a high quality broadband UHF dipole array on Mt Ginini in the Brindabella Mountains on the western edge of the ACT. This elevated site is subject to severe winds and ice build-up in winter; regular failure of most antennas is common. The new antenna is an RFS model SU1-4C, a flexible broadband 400-520 MHz eight dipole array, and all the 70 cm amateur services at Mt Ginini are coupled to this single unit.

BACK ISSUES

Available direct from the WIA Federal Office, only until stocks are exhausted, at \$4.00 each (including postage within Australia) to members.

PHOTOSTAT COPIES

When back issues are no longer available, photocopies of articles are available to members at \$2.50 each (plus \$2.00 for each additional issue in which the article appears).

The opinions expressed in this publication do not necessarily reflect the official view of the WIA, and the WIA cannot be held responsible for incorrect information published.

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A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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Editor's Comment

What is Time?

This topic was raised by several recent items. Firstly there was the excellent review article by Paul Clutter VK2SPC in September *Amateur Radio*, more on the subject of time measurement than time itself.

Then there was the awareness of a deadline fast approaching and an editorial still unwritten! To add to this, a feature article in the week-end newspapers discussed a new theory of the origin of the Universe, involving time as well as space contracting to near zero before the next "Big Bang". And due to happen rather sooner, the "Millennium Bug" which is going to foul up all our computers!

Finally there was a plea from our Production Manager for us to reach agreement about how we should specify dates.

Time is the common factor in all these topics. Once simply believed to be smooth progression, second by second, minute by minute and so on to year by year, century by century.

"Time, like an ever-rolling stream, bears all its sons away", as the 1719 hymn by Isaac Watts puts it, incidentally ignoring the daughters! But now modern physics has envisaged elastic time, along with curved space; fortunately being of little immediate relevance to those of us who don't explore the galaxies at the speed of light!

How about the Millennium Bug? I am not one of the computer "cognoscenti", but from what I can deduce from conversation with people who know more than I (almost everyone!), it will be unavoidable except by total software update, and time (that word again!) is running out. Its biggest impact will be in financial circles still operating with outdated systems on vast volumes of information. Almost certainly, there will not be sufficient experts available to put everything right before 31 December 1999. As the clock ticks over to 1 January 2000, many outdated systems will interpret the change from 99 to 00 as a regression to 1900. Think of the implications of 100 years negative interest on your term deposit, etc!

Continued on page 51

CONTRIBUTIONS TO AMATEUR RADIO

Amateur Radio is a forum for WIA members' amateur radio technical experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for possible publication. Articles on computer disk or via e-mail are especially welcome. The WIA cannot assume responsibility for loss or damage to any material. A pamphlet, "How to Write for *Amateur Radio*", is available from vk3br Communications Pty Ltd on receipt of a stamped, self addressed envelope.

■ WIA News

Roger Harrison VK2ZRH, Federal Media Liaison Officer

Australian Amateurs May Need to Meet RF Emission Limit Standards

The WIA understands the Australian Communications Authority (ACA) is examining the issue of having all licensed radiocommunications users meet radio frequency emission limit standards defined in the current Australian Standard, AS 2772.

The ACA is working on the matter in conjunction with the Radiocommunications Consultative Council (RCC), on which the WIA represents the Amateur Service as a radiocommunications user group.

Australian amateurs will have to face the likelihood that we will have to eventually comply with RF exposure limits set down in the standard.

Controversy over possible health hazards relating to exposure to RF energy were thrust into prominence in Australia during 1996, and again early this year, principally over emissions from cellular mobile telephones, cellular base stations and television station transmissions linked to studies on the incidence of certain cancers in the community.

There is considerable contention over the possible connection between exposure to electromagnetic energy and the development of cancers. While studies conducted around the world over decades have yet to show a causal link between exposure to either specific or general RF emissions, the scientific community is cautioning that no one can unequivocally say that RF energy, even at comparatively low powers, does not cause cancers.

There are ongoing international research projects into the effects of non-

ionising electromagnetic radiation, coordinated under the auspices of the World Health Organisation. In late 1996, the Australian government announced funding for ongoing research support and public education on the issue, to be paid for by a 1% levy on radiocommunications licence fees. The greater proportion of the \$4.5 million allocated over three years is targeted for public education campaigns.

Standards development on non-ionising radiation in Australia has been ongoing for some years, and is continuing through a joint Australian-New Zealand standards committee. The WIA is represented on this committee by an amateur who is a qualified medical doctor (Dr Vince McKenna VK3AOY).

So, in advance of any action by the ACA, how does the 'average' amateur station measure up in regard to the limits presently set under the standard, AS 2772, without going into the technicalities of the 'specific absorption rate' of RF energy by the human body, power densities and safe exposure limits? According to Dr Andrew Corney ZL2BBJ (also a member of the joint Australian-NZ Standards committee), a 100 W HF rig running into a wire dipole or vertical in the backyard is most unlikely to generate RF fields above the limits, even a few metres from the antenna. A three-element beam driven by a 100 W PEP HF rig is probably within bounds, too, but 400 W PEP could approach or exceed limits in suburban settings. On VHF, a 10-element 2 m beam driven by a 100 W rig generates

fields just on the standard's limits 10 metres away.

Many claims made regarding the RF emission levels of, for example, cellular mobile base station towers are unsustainable by the technical facts, Dr Corney points out, but this has not dissuaded community lobby groups as can be noted by newspaper reports in recent years.

US amateurs will have to meet RF exposure limits from 1 January 1998, with the technical specifications based on American Institute of Electrical and Electronics Engineers (IEEE) standards. However, US stations meeting given power output levels on specified bands, according to a sliding scale, are 'deemed' to comply, but those with higher powers will have to comply by changing station equipment and antenna specifications or locations, according to advice from the American Radio Relay League.

The WIA is monitoring developments in the Australian situation through its presence on the Radiocommunications Consultative Council. [Released 7/9/97]

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Commemorative Sputnik on 2 m?

The 40th anniversary of the launching of the first artificial earth satellite, Sputnik 1, will be celebrated this month with the launch of a working scale model of that first satellite on 4 October 1957. The commemorative model, built by Russian and French school students, will transmit on the 2 m band.

The 58 cm diameter sphere of Sputnik 1 weighed 83 kg and carried a dual-frequency transmitter, operating on 20.005 and 40.002 MHz, powered by chemical batteries. It was launched into a low earth orbit of 947 km apogee and 228 km perigee, with an orbital period of around 96 minutes.

Secondary school students from Naltchik in Russia and the French-owned Reunion Island are building a 1:3 scale model of the original Sputnik 1, which is scheduled to be launched by

cosmonauts from the MIR space station, providing MIR's recent problems have been overcome and it will be in operation in time for the launch.

The project came about following the signing of an agreement between Russia and France last February to organise a commemoration for the 40th anniversary of the launch of the first artificial earth satellite, Sputnik 1.

The satellite's body assembly is being made by the Russian students, while the French students are making the transmitter. This will transmit on the two metre amateur band, on a frequency somewhere between 145.810 and 145.850 MHz. Power output will be around 100-200 mW. It is anticipated the commemorative satellite will be able to be heard by earth-based listeners using simple equipment. The project

organisers anticipate school children should be easily able to participate in listening to the satellite.

The student-built 4 kg satellite will be battery powered and is expected to have a lifetime of between one and two months. Cosmonauts on board MIR will launch it by hand during a scheduled space walk, so its initial orbit will be close to that of the space station.

The commemorative satellite's transmitter will emulate the "beep-beep" tone signal transmitted by Sputnik 1. The transmitter will be frequency modulated with a 1300 Hz tone, the pitch of which will vary with the satellite's temperature. Listening for the satellite and 'taking its temperature' makes an ideal school project, one of the goals of the exercise.

Details can be obtained from the Internet, at <http://www.oceanes.fr/~fr5fc/angspoutnik.html>, as well as the Amateur Satellite (AMSAT) Corporation web site at www.amsat.org.

ar



Radio and Communications

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Your October R&C has loads of 'must read' articles. This month's features include...

- More crazy 'fix-it' yarns from a Yaesu tech, this time concentrating on the venerable FT-757GX.
- REVIEW: Yaesu FT-920. A full-size HF plus six metre transceiver at a sawn-off price. Good stuff.
- CONSTRUCTION: Finish building your BFO, then polish off the ATU. Two separate projects...
- Radio Netherlands. An in-depth examination of a respected international broadcaster.
- Digital HF car alarm shock! Imagine great slabs of HF handed to an alarm system. It's happened!!
- As usual, we have our three DX columns, mods and more... the best stories and regulars every month!

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(PS. We also have the biggest collection of radio-oriented Classified adverts in the country. There's lots of them because they work so well. Ask your newsagent to keep a copy for you each month, or ring 1800 25 2515 for subscription details. Hurry — you might miss something!)

■ Antennas

A Home-brew HF Balun

Drew Diamond VK3XU details how to build an effective HF balun.*

Most transceivers are designed to operate into a nominal 50 ohm unbalanced load, connected by a length of coax cable. However, many antenna configurations, including the ubiquitous dipole, are supposed to be balanced.

An antenna such as the G5RV, or an open-wire fed dipole, would normally be fed via an ATU which, in addition to impedance matching duties, also converts the coax output/input of a transceiver to a "balanced" feed of the antenna. But, if we simply use coax cable to connect our radio to a resonant single band or trapped dipole, whose feed point hopefully presents a balanced load, we may, under some unfortunate circumstances, find that RF energy sneaks back down the outside of the coax feed and finds its way into the shack. Some of the effects can be: small but annoying tingles from station equipment, squawks and feedback when transmitting voice modes, higher than expected SWR readings or changes in SWR when different length cables are added or subtracted from the feeder length, higher than expected noise pick-up on receive, and interference to other equipment.

To convert a BALanced load to an UNbalanced source (in our application, a transmitter), or a balanced source (a dipole) to an unbalanced load (a receiver) the traditional approach is to use a **balun**.

Operation

A fair analogy of the job that a balun must do, is the way in which a vehicle is driven. Imagine that the engine is the transmitter, the tail-shaft is our coax transmission line, and the road surface represents the balanced load. If all of the engine's output was simply applied to the road through one rear wheel, the handling of the vehicle would be unsatisfactory. Yet a solid rear axle is no solution because, on turning, the rear wheels would be required to rotate at different speeds, and any change in direction of the vehicle greatly resisted (go-karts and ride-on mowers get around the problem by "slippage").

As everyone knows, large vehicles use a differential between the tail-shaft and driving wheels. A solution in radio work, therefore, is to interpose a device, a sort of differential, which allows balanced and unbalanced circuits to be connected together with minimum power loss.

In practice, a nominally balanced antenna may be far from perfectly balanced. For instance, one end of the dipole may be closer to ground than the other, or one side may pass near a large metal object, such as an iron roof, and so on. A well-made balun, by performing the balanced to unbalanced conversion, prevents out-of-balance current from travelling down the outside of the coax

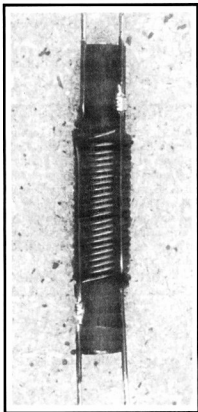


Photo 1 - The balun before potting.

feedline by effectively creating a high impedance to such longitudinal currents at the antenna/coax interface.

A device with some 1:1 "balun-like" characteristics may comprise a pair of enamelled wires about 300 mm long, whose characteristic impedance (Z_0) approximates that of the coax and the load, wound upon a suitable ferrite rod or toroid. In practice we find that, for the system to be truly balanced, the load resistance must be grounded at its centre; the "balun" by itself cannot force a condition of balance. Oscilloscope measurements prove this.

When the load is 50 ohms, comprised

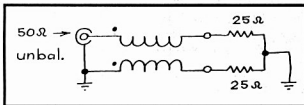


Fig 1

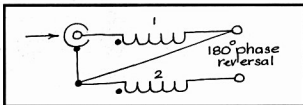


Fig 2

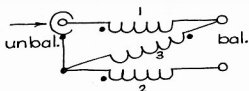


Fig 3

of two 25 ohm resistors in series with the centre connection grounded, exactly half the input voltage (applied at the coax end) appears 180 degrees apart across the ends of the total resistance (Fig 1). Now, if the load resistance is allowed to "float" by removing the ground, uncontrolled stray inductance and capacitance causes the voltage, measured at the ends of the load resistance with respect to ground, to be of different values at most frequencies

connected as in Fig 2, we get a phase shift occurring as the signal travels along the pair. In this instance, over the 1.5 to 50 MHz range the signal leaving the pair will have been phase-shifted 180 degrees during the transition. Without the ferrite core, the useful range is only about 15 to 50 MHz, so the core becomes increasingly necessary as the frequency is lowered.

The beauty of the coiled "balun" of

in the HF range, and to be not easily predictable. This device is therefore not a true balun.

What is interesting to observe, however, is that if the device is

Fig 2 is that, within limits, it will always provide a 180 degree phase shift regardless of frequency – a tremendously useful feature – and forms the basic building block for all practical wide-band baluns.

If a third winding is added and connected as shown in Fig 3, we obtain a true 1:1 balun. Although not strictly applicable to transmission line transformers, winding (or line) starts are shown with a dot. The windings have near unity coupling; that is, anything happening in one winding will intimately affect the other two, forming a triad.

The third winding provides a path for any magnetising current necessary to maintain balance. Within reasonable limits, should any imperfection exist, either in the balun itself (stray capacitance or inductance for example) or the load (an imperfectly balanced dipole), the third winding will source or sink to and from the other two lines, with sufficient current to restore balance.

In practice, resistance, dielectric, core and radiation losses for home-made baluns are such that a transmission loss of less than 0.5 dB is typical. When a resistive 50 ohm load is connected, SWR is less than 1.1 from 3.5 to over 50 MHz, rising to about 1.2 at 1.5 MHz.

Construction

After numerous experiments with HF baluns, using both toroidal and rod cores, twisted and side-by-side windings, it appears that the simple rod configuration with side-by-side windings, being the easiest to make, is as good as any of the more difficult toroidal patterns over the 1.8 to 50 MHz range. Furthermore, being a rod, with an open magnetic path, saturation is highly unlikely to occur at permitted Australian amateur power levels. The rod is wound with a trifilar of three enamelled copper wires of about number 16 gauge B & S (or 1.25 mm), each about 300 mm in length.

Two or three of the usual electronics suppliers have ferrite rods, or "loopsticks", intended for MW receivers. These are ideal for the application, although three times as long as needed. The rod may be cut by grinding a small v-groove around the circumference where required. Grip the rod with

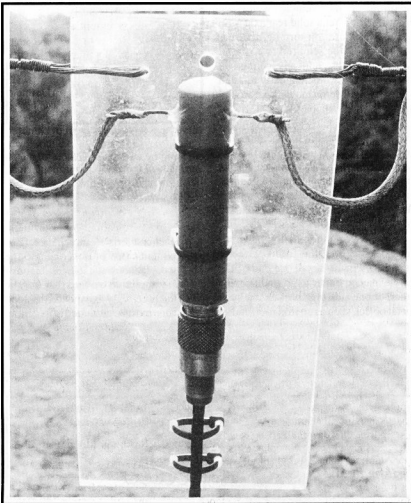


Photo 2 – The potted and mounted balun. Note the flexible connections (connector uncovered for clarity).

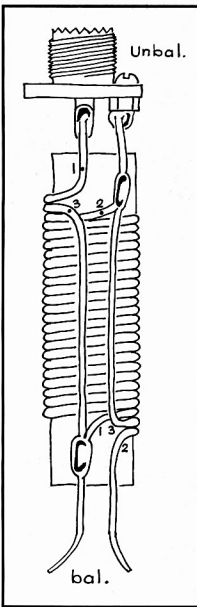


Fig 4

thumbs each side of the groove, then snap, as you would break a stick. Round off sharp edges with emery or glasspaper. A small flat style loopstick will also serve (tested), although a stack of three or four provides a better cross-sectional form. They should be glued together, then given one or two layers of Teflon tape to soften the corners.

Any small bumps and wrinkles in the wires must be removed. Anchor one end in a vice, then grip the free end with pliers and give each wire a firm tug. Align your three straight wires together side-by-side

as a triplet, then carefully wind on seven or eight turns (total 21 or 24 "loops", see Photo 1). Connect the "windings" as shown in Fig 4.

Note that the start (dot) of the second winding is connected to the end of the third winding, and the start of the third winding is connected to the end of the first winding. The balun will not function correctly if these connections have not been strictly observed. The drawing shows the connections pictorially. The enamel may be removed by careful scraping with a sharp pen-knife or similar. Try not to nick the wire, and leave no trace of enamel where connections are required. Your balun is probably going aloft for a long time, to become one of those "forgotten" components, so make each solder connection as near perfect as you can.

Transmission loss increases alarmingly when the windings are wet, or even damp, so the balun must be "potted", or enclosed in a water-proof casing (or both). Careful measurements on back-to-back baluns potted in two-part epoxy (Araldite™) and non-acid silicone (for guttering) showed no increase in loss. Silicon is suggested, however, because it is far cheaper than epoxy, and cures more rapidly. For improved durability, the balun should be fitted inside a plastic conduit tube. The silicon, when squeezed in, must be free of any voids or bubbles.

For a long, trouble-free life of the device, coax and antenna connections must be "relieved" of any strain; do not simply connect these to the balun! A popular and effective method is to mount the balun, using plastic cable ties or similar, to a suitably sized and shaped piece of Perspex or polycarbonate sheet (Photo 2). The coax connector is optional. If used, it must be taped to prevent ingress of moisture, and the cable tied to the sheet as shown. In any event, your coax must not simply hang unsupported from the balun.

Parts

Loopstick ferrite rods should be available from Rod Irving Electronics

(see ads in local electronics journals) and Truscott's Electronic World {(03) 9723 3860}, who can also supply winding wire, Perspex sheet, cable ties and SO-239 (f) style connector.

References

There has been a lot written about baluns, in both amateur and professional journals. Some of it is very good, but a significant amount, in my humble opinion, is badly written, too reliant on mathematical theory, muddled, misleading and, in at least one instance, just plain wrong. In all my researches on this subject (and it has been exhaustive), I have to admit that not a single "intuitive" model has so far been found which satisfactorily explains the observation that conventional transformer action appears to predominate at the low end (which is easily understood, and the core is essential), and that transmission line or "directional coupler" action predominates at the high end (where the core is hardly necessary), there being a smooth transition from one mode to the other as frequency is increased. Indeed, my own feeble attempt in "Operation" above does not touch upon how the device actually works. Nevertheless, the curious are pointed to the following articles in amateur journals which, I feel, are rather good.

1. *High Performance Hamband Balun* - Nagle; K4KJ, in *Ham Radio (USA) February 1980*.
2. *A Balun Essay* - Sevick; W2SMI, in *CQ June 1993*.
3. *Testing Baluns* - Nagle; K4KJ, in *Ham Radio (USA) August 1983*.
4. *Balanced to Unbalanced* - White; G3SEK, in *Radio Communication December 1989*.

*45 Guttering Road, Wonga Park VIC 3115

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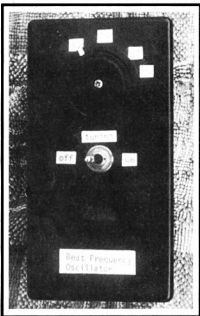
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■ Receivers

Receive SSB on Your Shortwave AM Radio

(Hear amateur activity for under \$15!)

Peter Parker VK1PK explains how you can listen to SSB signals on an AM radio.*



Signal Frequency BFO.

Project Level: Beginner.

Cost: Very Low.

Parts Procurement: Easy.

Introduction

The days when you could listen to amateurs on a simple shortwave AM receiver are with us again, thanks to the development of this one-transistor, frequency-agile signal frequency beat frequency oscillator. When teamed up with a low-cost AM set covering 3.5 and 7 MHz, this device provides effective reception of local eighty and forty metre SSB transmissions.

It is an ideal project for aspiring amateurs, as it allows them to monitor amateur activity. Its usefulness, low cost, and ease of construction would make it a

good group project for schools, radio clubs or amateur theory classes.

The device is a miniature transmitter. It provides a steady carrier signal to the receiver to replace that suppressed within the transmitter (refer to any radio theory book for a more detailed explanation). It is the ultimate in simplicity, employing but eight components. The unit costs approximately ten dollars to build from all-new parts, and requires no alignment or connections to the receiver. Anyone with basic soldering skills can construct this project, and have it working first time.

Though receivers covering the short wave bands are no longer in every home, suitable sets can be picked up cheaply at garage sales and swap meets. Tuning the medium wave and one or two short wave bands, their performance is lacking in many respects. Nevertheless, they work better than might be expected when used with this circuit. The reasons for this are given later.

Circuit Description

This unit is a one transistor 3.5 MHz RF oscillator whose frequency can be varied (Fig 1). As mentioned before, it replaces the carrier in the receiver that was suppressed during the transmitter's SSB generation process.

A 3.58 MHz ceramic resonator sets the oscillator frequency. This two-dollar component is similar to a crystal. Its main advantage is that it can be shifted over a 100 kHz frequency range by connecting a variable capacitor in series with it. While the frequency stability is somewhat inferior to that of a crystal, it is still acceptable for stable SSB reception.

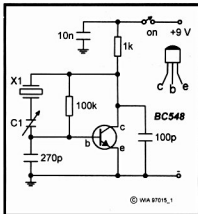


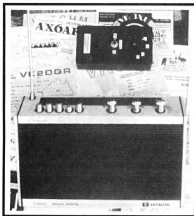
Figure 1 - Signal Frequency BFO schematic diagram. X1 is a 3.56 MHz ceramic resonator. C1 is a 60/160 pF variable capacitor with both sections connected in parallel.

Because the BFO operates directly on the received frequency, many of the limitations of low cost AM receivers (such as frequency drift, coarse frequency readout, hand-capacity and difficulty of tuning) are either eliminated or made less apparent. This is because the tuning in of SSB transmissions is effectively performed by a stable, easy to tune BFO, rather than the unstable free-running coarse-tuning local oscillator within the receiver. The latter would have been the case had a conventional 455 kHz fixed-frequency BFO been employed.

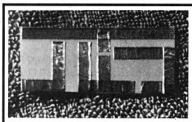
The circuit shown covers the popular 3.525 - 3.625 MHz frequency range. This permits reception of CW and SSB activity, WIA Divisional Broadcasts and Morse practice transmissions. The second harmonic of this range covers the 7.050 to 7.250 MHz segment of forty metres, while the fourth might be useable for twenty metre reception.

Construction

Virtually any construction method may be used to assemble the BFO. However, large stray capacitances must be avoided if the full tuning coverage is to be obtained. Several prototypes were built. The one in the photos uses a conventional single-sided etched printed circuit board. However, many other techniques are quicker, simpler and work just as well.



Signal Frequency BFO with typical AM short wave receiver.



Completed circuit board.

A method used by the author is to make a circuit board from a piece of cardboard (or plastic) and 5 mm-wide self-adhesive copper foil. This copper foil is sold on rolls at stained glass craft shops. Its adhesive is strong enough to withstand the heat from a soldering iron. Pieces of this tape are placed on a piece of cardboard (see photo). Where a bend is required, use two overlapping pieces.

Components are then soldered straight to the foil; use the schematic diagram and the photo for guidance. Areas where two pieces of tape overlap are soldered over to ensure a good connection. While the pictures depict the use of a piece of plastic for the board, this is not recommended as it tends to bend under heat. Instead, a piece of fairly rigid cardboard (eg from the side of an old cardboard box) is suggested. A blob of Blutak™ or similar may be used to mount it inside the case.

Full frequency coverage will only be obtained if leads are kept short. Those to the ceramic resonator and variable capacitor are particularly critical. Whereas most RF projects are built in metal cases to provide shielding, the BFO's operation depends on there being a lack of shielding between it and the receiver. Thus either a plastic or wooden box is recommended.

Testing/Operation

To verify BFO operation, your AM short wave set is required. Position the receiver near the BFO, and tune it across the 3.5–4 or 7–8 MHz frequency range.

At a certain point on the dial, the receiver will go quiet; all normal background noise will be silenced. Switching off the BFO will restore the normal band noise, while adjusting the BFO's Tune control will move the "silence" to a different frequency. If the BFO passes these two checks, you know that it works.

Now switch off the BFO, attach a piece of wire (preferably outdoors) to the receiver's telescopic antenna, and tune in a strong SSB signal for maximum volume. Assuming the received signal is within the BFO's tuning range, it will be possible to resolve the signal by correctly adjusting the BFO. Place the BFO near the receiver, and adjust the BFO's tune control until the receiver quietsens. Move the BFO away from the set, and adjust it carefully until the SSB signal is intelligible. Note that this setting is critical; the BFO's frequency must be equal to that of the transmitter's suppressed carrier.

While at first this process is somewhat fiddly, it becomes easier with practice. For optimum results, experiment with the physical distance between the BFO and the receiver; weaker signals require less signal from the BFO (ie a greater separation). However, it should be possible to find a compromise position for the BFO where reception from all stations is satisfactory.

Conclusion

A novel device to allow the reception of amateur signals on domestic AM-only short wave receivers has been described. It is cheap, very simple to build, and can be expected to work first time. It fills a definite need amongst potential amateurs, and has the advantage of being expandable to a direct conversion receiver or CW/DSB transmitter or transceiver as interest develops.

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available opportunity early in 1998.

TM-733A prize kindly donated by
Kenwood Electronics Australia P/L,
PO Box 504, Homebush 2140.
Ph: (02) 9746 1888. Fax: (02) 9746 1509.

Obtaining ceramic resonators

The 3.58 MHz ceramic resonator used in the prototype was purchased over the counter from RS Components (catalogue no. 656-170). RS has outlets in most capital cities. The Melbourne supplier Vorlac has also advertised ceramic resonators. Note, however, that there are variations between different brands of resonator, and you may need to experiment with component values. Full details are provided in the parts list.

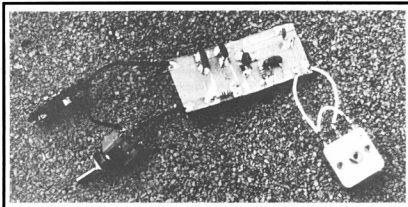
To assist those unable to obtain ceramic resonators for themselves, the author is able to supply free ceramic resonators to *Amateur Radio* readers on receipt of a stamped, self-addressed envelope sent to the address at the end of this article. Note that this offer is only valid for six months after the publication of this article, and for the first fifty people who respond.

Parts List

- 1 1 kilohm resistor
- 1 100 kilohm resistor
- 1 100 pF disc ceramic capacitor (See Notes 1 and 2)
- 1 270 pF (or 15 pF) disc ceramic capacitor (See Notes 1 and 2)
- 1 0.01 μ F (10 nF) disc ceramic capacitor
- 1 60/160 pF transistor radio variable capacitor
- 1 3.58 MHz ceramic resonator (see shaded panel)
- 1 BC548 NPN transistor
- 1 SPST switch
- Case, wire, solder, 9 volt battery snap, etc.

Notes:

1. These values provided a 3.525-3.625 MHz pulling range with the blue coloured ceramic resonators (as supplied by RS Components). If using one of the yellow ceramic resonators (as stocked by Vorlac), replace the 270 pF capacitor with one for 15 pF. This will provide a tuning range of about 3.550-3.610 MHz. Coverage down to 3.500 MHz is available by raising the value of the 15 pF capacitor. However, this will be at the expense of frequencies at the top of the range.



Completed BFO - built on a piece of plastic.

2. The use of polystyrene capacitors will improve the stability of the BFO, and would be desirable if the BFO is to be used for 20 metre reception. For the lower bands (particularly 80 metres), the

disc ceramic capacitors specified are more than stable enough.

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parkerp@pcug.org.au

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QSP News

JOTA Balloon Launch

The JOTA Balloon Launch is a joint venture between the Scout Radio and Electronics Service Unit (Victoria) and the Eastern and Mountain Districts Radio Club Inc.

Change of Launch Time

The time of the Balloon Launch has been changed to provide better utilisation by the Scouts at JOTA (the 11.00 am launch would have been a bit early for many stations). This new time will also assist the re-transmission of the JOTA opening broadcast at 2.00 pm EST (04.00 hrs UTC).

The new launch time is 1.00 pm EST (03.00 hrs UTC) on Saturday, 18 October 1997.

Slow Scan TV on board the JOTA Balloon

The Balloon will carry a Slow Scan TV Transmitter along with the other advertised payload.

Balloon slow-scan telemetry is in monochrome using the Robot 36 mode. This can be received using the public domain JV-Fax software and a fairly cheap and simple "Hamcom" interface.

The beacon frequency will be 145.700 MHz, which is the frequency of the ARDF homing beacon.

Transmission mode will be FM. Output power will be 100 mW continuous which will increase to approx one watt for the data bursts.

There will be a four-channel cross band repeater which will operate on the following frequencies at approximately 100 mW per channel:

Chan Uplink Downlink Usage

1	432.900	145.300	JOTA Traffic
2	432.925	145.325	JOTA Traffic
3	432.950	145.350	JOTA Traffic
4	432.975	145.375	General Traffic

Flight Details

The place of launch will be confirmed 24 hours before the launch and will be either the Police Paddocks near Dandenong (southerly winds), Geelong (westerly winds), or Bendigo (northerly winds).

Anticipated coverage when at peak altitude will be NSW (VK2), VIC (VK3), SA (VK5), and TAS (VK7). Line of sight coverage to sea level flat terrain will be approximately 500 km at 20 km altitude, and 350 km at 10 km altitude. Higher sites may extend the range up to a further 2-300 km. Antenna polarisation will be vertical, and the estimated flight time is three hours.

The mode of transmission will be FM in all cases, with FM voice telemetry, 1200 baud packet, and SSTV sent once every two minutes.

Further details may be obtained from the Scout Radio Electronics Service Unit, PO Box 311, Box Hill VIC 3128, or by contacting Philip Adams on 03 9438 3013 (AH) or 03 9262 1073 (BH).

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of August 1997:

L10171	MR D E SCOGGINS
L21054	MR T FAKE
L21055	MR P R B MCRAE
L21056	MR K ASHFORD
L31545	MR J HAMLETT
VK2ANN	MR D W MORRIS
VK2BTT	MR P A ORCHARD
VK2GNL	MRR W SAUNDERSON
VK2KCN	MR N C CORNISH
VK2MD	MR W S IRELAND
VK2PTK	MR T K BAKER
VK2WL	MR E W BASTOW
VK2WRP	MR R F PETTIT
VK2XFS	MR B BOWLER
VK3BAF	MR J E KERR
VK3FEN	MR C P CARROLL
VK3FHV	MR J D HARRISON
VK3HX	MR W JAMIESON
VK3WTM	MR W MULDER
VK5KMI	MR J R ELLIOTT
VK5NR	MR R J DAYMAN
VK6KRG	MR R A GREEN

■ Resistance

Parallel Resistance (Formula and Chart)

Paul Clutter VK2SPC makes it easier to find the right resistance.*

The following formula and chart will show how to obtain a desired resistance when the existing resistor is not quite the value needed or not the preferred value.

It relies on the formula for parallel resistors:

$$R_p = (R_1 \times R_2) / (R_1 + R_2)$$

where R_1 = existing resistor, R_2 = desired resistor, and R_p = resistance to add in parallel.

A little mathematical rearranging gives:-

$$R_1 = (R_2 \times R_p) / (R_1 - R_p)$$

where R_p is the resistance you want, R_1 is the resistor you have and R_2 is the resistor you need.

Say, for example, you need a 1% resistor of 100 ohms, but searching through your bins you find only a few 105 ohm (5%) resistors. By the formula:

$$105 \times 100 / 105 - 100 = 10,500 / 5 = 2100 \text{ ohms.}$$

A 2200 ohm resistor (preferred value) will give you 100.2169 ohms (within 1%) and if your bin does not produce a lower value, then a 5% over that (2310 ohms) will get you 100.434 ohms, still within 1% of 100.

*52 Keats Avenue, Bateau Bay NSW 2261

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VK2SPC Parallel Resistor Selection Chart

	10	12	15	18	22	27	33	39	47	56	68	82	
10	5.00	10.71	13.04	15.25	18.03	21.26	24.81	28.06	31.97	35.90	40.48	45.05	100
12	5.45	6.00	13.33	15.65	18.59	22.04	25.88	29.43	33.77	38.18	43.40	48.71	120
15	6.00	6.67	7.50	16.07	19.19	22.88	27.05	30.95	35.79	40.78	46.79	53.02	150
18	6.43	7.20	8.18	9.00	19.60	23.48	27.89	32.05	37.27	42.71	49.35	56.34	180
22	6.88	7.76	8.92	9.90	11.00	24.05	28.70	33.13	38.73	44.64	51.94	59.74	220
27	7.30	8.31	9.64	10.80	12.12	13.50	29.41	34.08	40.03	46.38	54.32	62.90	270
33	7.67	8.80	10.31	11.65	13.20	14.85	16.50	34.88	41.14	47.88	56.38	65.68	330
39	7.96	9.18	10.83	12.32	14.07	15.95	17.88	19.50	41.95	48.97	57.90	67.75	390
47	8.25	9.56	11.37	13.02	14.99	17.15	19.39	21.31	23.50	50.04	59.41	69.82	470
56	8.48	9.88	11.83	13.62	15.79	18.22	20.76	22.99	25.55	28.00	60.64	71.53	560
68	8.72	10.20	12.29	14.23	16.62	19.33	22.22	24.79	27.79	30.71	34.00	73.18	680
82	8.91	10.47	12.68	14.76	17.35	20.31	23.53	26.43	29.88	33.28	37.17	41.00	

Values above diagonal use right side scale, all others use left side scale

Diagonal is from top left to bottom right

VK2SPC parallel resistor selection chart. Pick the resistance that you require in the body of the chart. The two parallel resistors will be given by the values on the axes.

■ News Broadcasts

Producing an Amateur News Broadcast

Peter Parker VK1PK, VK1WI's former producer, gives some tips on Divisional broadcast production.*

Introduction

A good broadcast is a must for any effective WIA Division. Whether used to maintain interest in amateur radio, keeping listeners up to date with the latest developments, or raising the profile of your Division, a broadcast plays a key role in disseminating information.

More immediate, more frequent and cheaper to produce than a newsletter, a weekly broadcast gives WIA Divisions a facility not enjoyed by most other voluntary organisations. With its broad audience, a well-produced bulletin can be an effective advocate for amateur radio and the WIA. A newsworthy broadcast boosts member morale (thus aiding retention), and enhances the credibility of the local Division in the eyes of the amateur fraternity. Many amateurs derive their news from no other source.

Whether a broadcast officer, contributor or committee member, this article gives some tips on how your Division can advance itself through providing a better news service. I also hope that this article will encourage more to contribute to their local broadcast.

The Role of a Broadcast

A Divisional broadcast has several functions. Some of these are as follows:-

- * To provide reliable, up to date and impartial reporting on current amateur radio happenings;
- * To foster interest in amateur radio activities amongst both existing and prospective amateur licensees;
- * To promote WIA Federal, Divisional and Club events and member services; and
- * As a means of articulating and

reinforcing ourselves as radio amateurs.

Different Divisions have differing emphases; some aim to provide a service for members only, while others favour a broader role encompassing all people with an interest in amateur radio, including non-WIA amateurs and those yet to be licensed. My personal preference is for the more inclusive approach.

What Makes a Good Broadcast?

Having established the purposes of a broadcast, we can now look at the ingredients of a successful and respected news service. These fall under the following headings:-

- i. Content and structure;
- ii. Technical quality;
- iii. Accessibility; and
- iv. Presentation.

After elaborating on each of these points, some general thoughts on broadcast organisation and production are given near the end of the article.

Content and Structure

To preserve listener interest, the content of a Divisional broadcast must appeal to a wide cross-section of the amateur fraternity. As well, transmitted material should take into account the limitations of the broadcast medium. Whereas a reader can skip material not of interest in a book, he/she has no such control when listening to a broadcast. For this reason, a larger number of brief stories is preferable to a smaller number of longer items. While exceptions can always be made when an item is of exceptional importance and/or topicality, broadcast officers should keep items short to sustain audience interest.

For the same reason, complex descriptions, detailed contest rules, and addresses are not particularly suited to the broadcast medium. However, thanks to digital communication, such information can be distributed easily via packet radio or Internet.

It is desirable that bulletins follow a set structure. Introductions should be short and to the point; other information (such as about the Division) is better placed at the end of the broadcast. The placement of immediate, brief and newsworthy items near the beginning of the bulletin, with features, opinion, technical and longer pieces near the end is a good format. A brief mention of coming stories before each station identification helps keep listener interest. Figure 1 shows a format that has worked successfully for the VK1 broadcast.

Technical Quality

Important to a successful broadcast is its audio quality. Achieving quality is harder than one might think, particularly when producers use a variety of audio sources, such as live voices, tape recordings, or telephoned material. Additional challenges arise when the broadcast is fed through linked repeaters and/or relayed on HF.

Any effort to improve audio quality is time well spent; WIA broadcasts are regarded as standard setters in the amateur community, and are expected to be of superior quality. Poor audio is never appreciated by listeners, particularly those in areas where signals are marginal.

Accessibility

This means the extent to which listeners are able to avail themselves of broadcast contents. In a large state, this could entail making the broadcast available on several HF frequencies or a network of linked repeaters, so that as many as possible have the opportunity to listen.

Transmitting a repeat of the broadcast at another time can also add to its accessibility. Those dependent on HF relays may find that sometimes only the repeat edition is audible.

Another means of improving access is to post a written copy of the bulletin on packet radio and/or the Internet. Such a practice also has the potential to reduce

the broadcast officer's workload, as the sharing of written broadcast material between states is made easier. Service reliability here is essential; people will not become accustomed to using the service otherwise.

Presentation

A clearly articulated and well-presented effort is much more likely to capture the interest of listeners.

When compiling a broadcast, please remember your more distant and interstate listeners, who may be listening under difficult conditions. For this reason, slow speech, clear pronunciation, and repetition of important information are essential for any announcer. More information on such matters can be found in your local library under topics such as "public speaking" or even "broadcasting". Experts in the field say that the control of breathing is most important.

Divisional broadcasts should not be monologues; a change of voice at least every ten minutes is desirable. This can be achieved through the use of extra announcers or taped segments. However, there is nothing worse than hearing an unpractised announcer stumbling through a piece of unfamiliar text that he/she does not understand. To alleviate this, the use of material read by those with a special interest in the topic is preferred. Such contributions, separated by the main presenter's commentary, can then form a coherent bulletin.

Though some presenters can string together sentences from a page of rough notes, there is nothing wrong with relying on a well-written script. Such a script need not be in paper form; the screen of a laptop computer can serve well, and eliminates the need for a print-out to be made. A benefit of a comprehensive script (particularly one available on computer disk) is that it can form the basis of the packet/Internet edition of your broadcast, and even be of use when compiling the Divisional newsletter or *Amateur Radio* column.

At VK1WI, the main activity has been the production of a single script from a variety of news sources, be they notes from meetings, mailed contributions, telephone calls or packet radio messages. Work on the script normally begins at

least a week prior to the bulletin's transmission. Should a deluge of contributions be received late in the week, less urgent items can simply be transferred to the following week's script.

Broadcast Organisation

Relationship with Divisional Council

Being a broadcast officer is one of the most demanding tasks in any Division. Therefore, it is seldom possible for the broadcast officer to occupy other substantial positions in the Division, and do them both justice. Indeed, there is merit in the broadcast officer having a degree of independence. However, the broadcast officer should be in a position to report on Divisional council meetings. The relationship between the broadcast and Council varies between states, from cases where the Secretary effectively determines news content to one where this responsibility is delegated to the news editor.

I personally prefer the latter approach (allowing for committee intervention in special circumstances), as independence is likely to boost the credibility of a broadcast amongst listeners (particularly non-members). In the longer term, this can only raise the esteem with which the Institute is held in the general amateur community.

Contributions

A Divisional broadcast is almost insatiable in its appetite for contributions; for a 30 minute bulletin, 3000 plus words per week is normally required. To satisfy this need, it is imperative that the broadcast officer develop good links with regional and special-interest clubs, whose activities provide the "raw material" required to sustain a broadcast. In addition, individual amateurs with expertise in a particular facet of amateur radio (such as DXing, contesting, ATV, WICEN, etc) have much to offer a news service. The use of such broad input is likely to add to the respect that the broadcast commands amongst its listeners. As well, coverage of a range of viewpoints will help remove any perception that the bulletin is simply propaganda compiled by a few diehards in an isolated bunker far



YOUR HOBBY **YOUR VOICE**
Representing Radio Amateurs - Since 1910

RECRUIT A MEMBER & THEY COULD WIN!

**THIS GREAT
FLUKE 12B
DIGITAL
MULTIMETER
WORTH \$195**



THERE'S A WINNER EVERY MONTH FOR 1997 12 PRIZES TO BE WON

This latest hand-held DMM, from the world-leading maker of digital test instruments, has advanced features yet is simple to use. Ideal for tyro & veteran.

The Fluke 12B measures:

- ac and dc voltage (with auto-selection)
- resistance & capacitance (.001-1000µ)

The Fluke 12B features:

- 4000-count liquid crystal display
 - simple rotary dial
 - diode and continuity testing
- indicates intermittent opens & shorts
- 2-year warranty

Fluke 12B prizes generously donated by Philips Test & Measurement.

Each month's prize is awarded by way of a draw among newly recruited members each successive month and presented to the winner at the earliest opportunity following the draw.

To sign up a new member, use the back of your AR magazine address leaflet - or clip the coupon, have them fill it out and send it now.

SEND TO YOUR DIVISION'S ADDRESS, SHOWN ON PAGE 56.

✂ Please send me a membership application.

NAME

ADDRESS

..... P/code

Call Sign (if any) [AR 1-11/97]

PREAMBLE (or jingle)
INTRODUCTION ("VK*WI Amateur Radio News")
MAIN POINTS ("In today's bulletin..." [3-5 points only])

INTRODUCE PRESENTER
RELAY STATIONS AND FREQUENCIES

MAIN BODY
(more immediate/newsworthy reporting first)
(features/opinion/technical/longer items later)
(details of coming stories and station identifications every ten minutes)

ENDING
DIVISIONAL ADDRESS AND CONTACT INFORMATION
CONTRIBUTING TO THE BROADCAST
OTHER WAYS OF RECEIVING THE BROADCAST (details of retransmissions, packet & Internet services)

CALLBACKS
AWARD OR OTHER NET (optional)

Figure 1 - A Possible Broadcast Structure

removed from mainstream amateur activity!

A successful broadcast is the product of considerable editing. This may be due to space limitations, or the need to repeat vital information. As well, contributors vary considerably in the lucidity of their prose. Items submitted may also be incomplete, and require the broadcast officer to provide additional background information.

Contributors should be able to lodge items by as many means as possible, such as post, telephone, packet radio, computer disk, facsimile and Internet e-mail. Broadcast editors are not always inundated with contributions, so it is best to make contributing as easy as possible. Despite the additional lead time required, the use of a single prepared news script is advantageous, as material can be accepted even if scrawled on the back of the proverbial bus ticket.

Broadcast Production Length

A length of thirty to forty minutes is regarded as the optimum length of a Divisional broadcast, unless the gravity of the subject matter or the presenter's skills are sufficient to hold the listener's attention for longer. When tuning around the HF bands on a Sunday, you will find that most Divisions conform to this pattern. In the past, some compilers have been prone to over-estimating the time that a listener will remain beside the radio. For this reason, brevity, tight editing and a clear, crisp writing style

will win the appreciation of many listeners.

Newsworthiness

The immediacy of a radio news bulletin is perhaps its greatest strength vis-a-vis magazines and newsletters. It is for this reason that weekly broadcasts are far preferable to fortnightly or monthly bulletins. Broadcast producers should exploit this immediacy through giving prominence to current happenings by including them near the beginning of the bulletin.

What Should Not Go on a Broadcast?

Broadcast officers come across considerable amounts of information when compiling a bulletin. Most of this material, whether from individual contributors, clubs, packet radio or the Internet may be of interest to the listener, and deserving of airing. However, one occasionally comes across items that have no place on a Divisional broadcast. Good judgement and editorial discretion are required to ensure that your Division's broadcast remains credible. Even leaving aside ethical and legal considerations, the WIA is widely viewed as a standard-bearer, and the airing of personal grievances, disguised as "news", through Institute facilities is unlikely to curry much favour with those listening.

The following have no place on a Divisional bulletin:-

* Denunciations of individuals, clubs or other parts of the Institute (this

never has the desired effect and invariably reflects badly on the news editor and the WIA);

* Other material likely to defame; and
* Editorial opinion disguised as factual reporting.

Nevertheless, there is considerable room on Divisional broadcasts for creative expression, satire and humour particularly of the type that mocks irrational prejudices or exposes traits peculiar to radio amateurs as a group. Such material is eminently broadcastable as it assists in defining who we are and questions conventional wisdom that might have outlived its usefulness. When in doubt, the final test of the suitability of any item is whether its airing is in the best interests of amateur radio.

Accuracy

As a broadcast is seen as being the product of a Division and not of those who produce it, there is a need to ensure the veracity of material broadcast. This is not easy; even the SMA (ACA) has, on occasion, given conflicting advice when approached by broadcast officers, individual amateurs and other WIA officials. However, one may safely place more credence in, say, a press release from WIA Federal, than a comment overheard on air. In the worst case, should you be wrong, you can readily refer people to the source of the material.

The standard of proof required for broadcast items should reflect their materiality; a packet message or telephone call is adequate for most items, which are comparatively unimportant, but greater standards of evidence may be desirable for more substantial stories. Due to the news editor's limited time, it is often a question of appropriate risk management; one should ask oneself the consequences of getting a story wrong. In extreme cases, it is safer not to run the story at all, if there are doubts about its veracity.

Technology in Broadcast Production

In progressive Divisions the work of the news editor has changed markedly in the last decade. News gathering has been revolutionised by computers, packet radio and the Internet. Australian broadcast officers now have the

opportunity to exchange material through the WINEWS packet radio server, developed by Graham Kemp VK4BB. Information on a wide range of amateur activities can be obtained through the packet radio Teletext system, also developed in VK4. WIA Federal now sends news via e-mail. Rather than having to listen at a specified time for the voice bulletin, amateurs in some states can stay in touch by reading the broadcast on packet radio or telephone bulletin boards. It is only a matter of time before it will be possible to listen to recordings of voice broadcasts through the Internet.

All this has changed the skills required by the broadcast producer; with the emphasis shifting towards editing masses of information to produce a bulletin suitable for a range of distribution methods. The new technologies mean that is now possible to produce a higher quality product in

less time than ever before. However, technology should be used only to the extent that it remains a servant and does not become a master, distracting the user from primary duties.

Additional Services

A weekly broadcast (and associated packet/Internet bulletins) need not be the only product of a Divisional News Service. To keep amateurs better informed, while raising the standing of your Division, urgent or very important items could be issued as special stand-alone bulletins on packet radio and/or the *aus.radio.amateur.misc* Internet newsgroup. This exploits the immediacy that data communication offers, and helps to dispel the notion that the WIA is unable to act quickly when required. Updated or more detailed information could always be included on the next available regular broadcast. The main risk to watch for here is the possibility of

issuing an erroneous bulletin, hastily written on the basis of incomplete or incorrect information.

Another service, possibly forming part of your Division's publicity strategy, is a series of short bulletins (of no more than a few paragraphs each) detailing WIA Federal or Divisional achievements and member services. These bulletins could either be aired on the regular Sunday news, or presented as a series of stand-alone messages on packet or the Internet.

Conclusion

This article has given a few hints for those engaged in Divisional broadcast production. In doing so, it is hoped that it will give listeners a clearer idea of a broadcast's role, and encourage greater involvement in Divisional bulletins amongst the general membership.

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Technical Technical Abstracts

Gil Sones VK3AUI*

Twelfth Wave Transformer

The quarter wave transformer used to match two impedances is well known. However, the use of a quarter wave transformer often requires the fabrication of a suitable section of line as the impedance required is often a non standard value. There is, however, a way to match two different coaxial lines using only the lines themselves. This is the so called twelfth wave transformer. The penalty is the need for an extra pair of connectors.

In QST, June 1997, Darrel Emerson AA7FV/G3SYS described the twelfth wave transformer. The technique has been around for some time and was first described by Bramham in 1961 and in QST by Frank Regier OD5CG in 1978.

The equation for a quarter wave transformer is:

$$Z_0 = \sqrt{Z_1 \times Z_2}$$

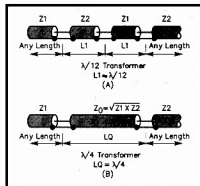


Fig 1 (A) and 1 (B)

The quarter wave transformer is shown in Fig 1 (B).

A common problem is matching cheap and good 75 ohm cable into a 50 ohm system. The 75 ohm cable used for Cable TV is often available cheaply and is of very good quality. For 50 ohm cable to be matched to 75 ohm cable the matching section is 61.2 ohms. This is a non standard cable impedance.

The twelfth wave transformer is shown in Fig 1 (A). The line sections are of equal length and are close to a twelfth of a wavelength long. The exact length required is given by equation 2:

$$L = \frac{\arctan \sqrt{\frac{B}{B^2 + B + 1}}}{2\pi}$$

where $B = Z_1/Z_2$, the ratio of the impedances to be matched, and arctan is in radians.

The result of calculating equation 2 is shown in Fig 2 where the length of the matching sections is graphed against the ratio of the impedances to be matched.

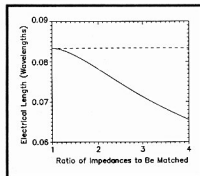


Fig 2 - Electrical length of cable sections.

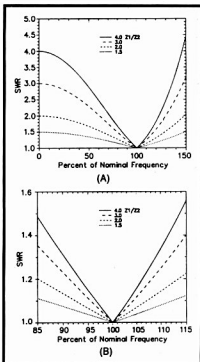


Fig 3 - Bandwidth of Twelfth Wave Transformer. For impedance transformation ratios of 1.5, 2, 3, and 4, 75 to 50 ohms is a ratio of 1.5. (A) Shows SWR from DC to 1.5 times the design frequency. (B) Shows SWR within +/- 15% of the design frequency.

The result is fairly tolerant of errors in the cutting of the cables and has a reasonably broad bandwidth of match. The matching bandwidth is shown in Fig 3.

The cable lengths used must be adjusted for the velocity factor of the cables used. For convenience, and subject to the availability of connectors, RG11 and RG213 style cables could be used to match to TV cable. The connectors for the TV cable can be difficult to obtain and may need to be concocted and fabricated.

Measuring Airflow

Builders of linear amplifiers using power valves often have difficulty in measuring the volume of the cooling air flow. Too little air can lead to overheating and premature failure of the power valve. This is particularly important for ceramic metal valves. The cooling fins result in significant back pressure which reduces the efficiency of the blower.

A simple test was described by Ian White G3SEK in the "In Practice" column in *RadCom*, August 1997. The method described originated in a *QST* article by George Daughters AB6YL/W6TG. The method consists of timing the filling of a thin plastic bag at the air output.

The method is illustrated in Fig 4. The bag must be thin and light and a supermarket bag is ideal. The bag handles are removed and the bag is taped to one side of the duct. Crumple the bag so as to expel air. Then turn on the blower and allow it to come up to operating speed. Quickly move the mouth of the bag across the air outlet and clamp it so as to minimise leakage. Time the inflation time and release the seal when the bag is fully inflated. Repeat the procedure several times and average the result.

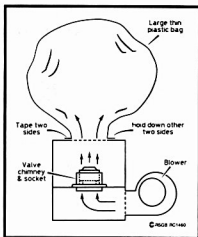


Fig 4 - Measuring air flow by inflating a plastic bag.

A British supermarket bag was estimated to hold 16 litres or 0.6 cubic feet. Local bags are probably similar but would need to be estimated. You could try filling one with water but watch out for a wet floor. You may be able to fill one with a known volume of water without bursting. The experiment would be best performed outside or in a bath or wash trough.

Integrated Circuit Desoldering

A technique for desoldering and removing integrated circuits from printed circuit boards was described in

the "In Practice" column of Ian White G3SEK in *RadCom*, August 1997. The technique was originally described by Michael Covington N4TMI.

The technique involves the use of a hot air gun to melt the solder on all pins simultaneously. The printed circuit board is mounted vertically in a vice so as to allow access to both sides. An IC puller is attached to the IC using a rubber band to tension the puller. Then the solder side of the board is heated with the hot air gun. The gun nozzle should be held 13 mm from the board and moved about so as to heat all connections to the IC. The gun nozzle should be about 13 mm diameter. After about 30 seconds the solder should be melted and you should be able to pull the IC out. Clean up the holes with copper braid.

The method is illustrated in Fig 5. If your heat gun is of a larger size you may be able to mask off other areas of the board with aluminium foil. The secret to minimal damage is to apply heat for only a short time and only as long as is necessary to melt the solder and remove the IC.

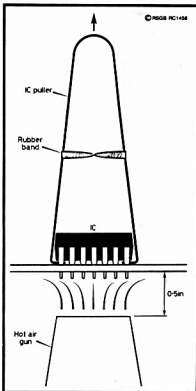


Fig 5 - Using a hot air gun with an integrated circuit puller.

LF Across the Tasman Sea

On 30 August 1997 between 0800z and 1000z a two way low frequency contact took place across the Tasman sea. Two way contact was made between Dave ZL3FJ and Robert AX2TAR/VK7ZAL using both SSB and CW. Richard VK7RO took part, also

receiving signals from New Zealand. The signals were on 176.5 kHz CW and 177.5 kHz SSB.

The ZLs had the use of a 122 metre broadcast tower which was due for demolition. The tower had a very good earth mat in place from the broadcast days. The ZLs made good use of the few days use of the tower and the two way contact resulted.

In New Zealand there is an LF allocation, while in Australia an experimental or scientific licence and frequency allocation were used. Congratulations to ZL3FJ, VK7ZAL/AX2TAR, and VK7RO. Thanks to Robert VK7ZAL for the information.

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Internet Radio Mailing Lists and How to Use Them

Richard Murnane VK2SKY explains that there is more to the Internet than the World Wide Web.*

Last year, I gave a brief introduction to the World Wide Web, and how amateur operators can make use of it [Ref 1]. However, the Web, while new and glitzy, represents only a small amount of Internet activity.

In some respects, Internet mailing lists are less of a culture shock to the average amateur, yet they offer a rich source of information, and allow amateurs and non-amateurs alike to exchange views on an incredibly wide range of topics, without many of the limitations of our current packet radio network.

At this point, I should reiterate my position that I see Internet, not as a substitute for amateur radio, but as a valuable adjunct to our line hobby. And, with Internet on the verge of becoming the next television, we can use it to bring the joys of amateur radio to millions of technically-oriented prospective amateurs out there.

Internet Mail and News v Packet

So let's get right into it. As a way of easing you into the world of Internet, I'll draw some comparisons with an area familiar to many amateurs: packet radio. Many amateurs obtain an account with their local Internet Service Provider (ISP), and use a terminal emulation program on their PC to access that account. Conceptually, this is like getting your packet station together and logging on to your friendly local packet BBS. More recently, easy to use programs aimed mainly at "Web Surfers" have

come on the market; however, the basic mechanism is still the same.

Having signed on, the packet operator usually lists the available messages (eg L), to see if anything is of interest, perhaps checking for topics of particular interest (eg L> WIA). He might send a bulletin for others to read (eg SB WIA @ VKNET), or perhaps a private message to another amateur (eg SP VK2SKY).

On the Internet, things are a bit different, due to the scale of the thing. Whereas a busy packet BBS might store a few hundred messages, a typical ISP would typically have tens of thousands. Even with the higher bandwidth afforded by modern modems (typically 33.6 kbps vs 1200 bps still commonly in use on packet), the subject lines alone would be too much to read in one session.

In addition, because the users are much more socially diverse, most of the messages would be of little or interest to any particular user. For this reason, messages are divided into discussion forums or newsgroups. These are structured as a huge tree, as reflected by the newsgroup names, for example:

The range of newsgroups available is truly astounding. A typical ISP would provide access to hundreds of these discussion forums, so you can get some idea of the volume of traffic involved. The topics range from the ordinary to the very strange, so there is something to suit every taste.

Fortunately, you can subscribe just to the newsgroups of interest to you, and

ignore the rest. Even so, it's quite possible to spend so much time reading Internet news that your friends on air start wondering if you're still alive.

Another alternative is to subscribe to an Internet mailing list, so that the interesting traffic will come to you in the form of electronic mail. Simply subscribe to the lists of interest, connect rec.radio.amateur.antenna

Recreation - radio - antennas

rec.radio.amateur.homebrew

Recreation - radio - radio home brewing

rec.food.cooking

Recreation - food - cooking discussions

aus.radio.amateur.misc

Australian - general Amateur Radio topics

aus.radio.amateur.wicen

Australian - WICEN activity

alt.psychology.nlp

Neuro-Linguistic Programming (a pet topic of mine)

to your ISP every so often, download your mail, log off again, and read your mail at your leisure.

Mailing List Servers

A list server is a program which keeps track of a list of subscribers, and distributes e-mail messages amongst them. These servers are set up by interested individuals for the use of groups of people sharing specialised interests.

Usually, anyone can subscribe to an Internet mailing list, simply by sending

Some Radio-oriented Internet Mailing Lists

Lists at majordomo@contesting.com :

*Note: the lists shown here are also available in digest form (append -digest to the list name, eg **amps** becomes **amps-digest**)*

List Name	Description
amps	RF Amplifier Discussion List
cq-contest	CQ Contest Mailing List
tentec	TenTec Amateur Radio Mailing List
topband	Top Band Reflector
towertalk	Tower Talk Reflector
yaesu	Yaesu Amateur Radio Mailing List

Lists at majordomo@qth.net :

*Note: the lists shown here are also available in digest form (append -digest to the list name, eg **50mhz** becomes **50mhz-digest**)*

List Name	Description
50mhz	6 Metres only Amateur Radio List-Server
alinc	Alinco Amateur Radio List-Server
aprs	APRS Amateur Radio List-Server
ares-races	ARES-RACES Amateur Radio List-Server
bpsk	BPSK/DSP Weak-Signal Detection Amateur Radio List-Server
cw	CW Amateur Radio List-Server
emwin	Emergency Manager's Weather Information Net Amateur Rad
ham-books	HAM-BOOKS Amateur Radio List-Server
ham-software	HAM-SOFTWARE Amateur Radio List-Server
handi-hams	Handicapped Hams Amateur Radio List-Server
homebrew	Homebrew Amateur Radio List-Server
icom	Icom User's Amateur Radio List-Server
kenwood	Kenwood Amateur Radio List-Server
meteor-scatter	Meteor Scatter Amateur Radio List-Server
mobile-portable	MOBILE-PORTABLE Amateur Radio List-Server
packet-pbbs	Packet and PBBS Amateur Radio List-Server
sstv-atv	SSTV and ATV Amateur Radio List-Server
vintage-radio	Vintage Radio and AM Amateur Radio List-Server
wsvhf	International Weak-Signal VHF Amateur Radio List-Server

Lists at majordomo@netcom.com :

List Name	Description
harc-races	Radio Amateur Civil Emergency Service
ham-tech	Amateur Radio Technical Discussions
letter-list	Amateur Radio - The ARRL Letter
newslines-list	Amateur Radio Newslines

Lists at listserv@ucsd.edu :

List Name	Description
ham-am	Amplitude Modulation in Amateur Radio special interest list
ham-amtor	Amateur Radio AMTOR special interest mailing list
ham-ant	Bidirectional mailing list with Usenet group rec.radio.amateur.antenna
ham-atv	Amateur Radio Fast-Scan Television
ham-boatanchors	Old klunky but still usable massive amateur ("ham") radio gear.
ham-digital-voice	Amateur Radio digital voice special interest list
ham-digital	Bidirectional gateway with Usenet newsgroup(s) rec.radio.amateur.digital.
ham-dx	Bidirectional mailing list with Usenet group rec.radio.amateur.dx
ham-dxing	Amateur Radio DX (long distance communications) special interest
ham-eme	Amateur Radio Earth-Moon-Earth special interest
ham-equip	Bidirectional gateway with Usenet newsgroup rec.radio.amateur.equipment
ham-exotic-modes	Amateur Radio exotic modulation methods and other strange interests
ham-fax	Amateur Radio FAX
ham-fm	Amateur Radio F.M. (primarily VHF/UHF FM and repeaters)
ham-hf	Amateur Radio High Frequency (below 30 MHz) communications
ham-homebrew	Bi-directional gateway with Usenet newsgroup rec.radio.amateur.homebrew
ham-mods	Modifications to commercially-made Amateur Radio equipment
ham-morse	Morse code in amateur radio
ham-nocode	Eliminating the Morse Code examination requirement for Amateur Radio
ham-packet	Amateur Packet Radio
ham-rtty	Amateur Radio Teleprinter special interest
ham-slowscan	Amateur Radio Slow-scan Television special interest
ham-space	Bi-directional gateway with Usenet newsgroup rec.radio.amateur.space
ham-spread	ham-radio spread spectrum techniques and applications
ham-ssb	Amateur Radio Single Sideband techniques special interest
ham-uwave	Discussion of Amateur Radio Microwave experimentation (> 1,000 MHz)
ham-vhf-uhf	Amateur Radio VHF and UHF communications special interest
nos-hacks	KA9Q "NOS" Amateur Radio networking package and derivatives

an e-mail request to the server (although some lists are private or have a membership controlled by a human moderator.) If you later decide that you are no longer interested, another e-mail to the server automatically ends your subscription.

So, how do you find out what lists are available? If you have web access, check out <http://www.neosoft.com/internet/pam/> or <http://catalog.com/vivian/interest-group-search.html>; alternatively, using an Internet news reader, check out the **news.answers** newsgroup. Periodically, the *List of Publicly Accessible Mailing Lists* appears there.

To save you some initial searching, I have listed in the tables several mailing lists of interest to Amateur operators.

Using a List Server

The easiest way to find out how to use a particular mail server is to ask it. Simply send e-mail to the server, placing the word "help" in the body of the message, like this:

To: majordomo@contesting.com

Subject: *anything you like – the server ignores this part*
help

Within a few minutes, you will receive an email back from the server, detailing the commands that the server understands.

Two flavours of mailing list server are commonly in use on the Internet: **MajorDomo** and **ListServ**. They both offer essentially the same services, but the commands they understand are slightly different. They are generally distinguishable by the form of their e-mail addresses (see Table 2).

To send a command to a list server, you simply send e-mail to it, placing the desired command in the body of the message, for example:

To: listserv@ucsd.edu

Subject: *anything you like – the server ignores this part*
subscribe ham-ant

When you subscribe to a list, the server will send you another e-mail, usually describing the subscribed list, and how you can end your subscription. It's a good idea to save this message for later reference. As a subscriber, you will now receive a copy of every message that the other subscribers send to the list.

At this point, it's important to distinguish between the list server, and the list itself. You send mail to the **list** (in this example, **ham-ant**) to communicate with the other subscribers; you send e-mail to the **server** to end your list subscription, check out other lists, and similar administrative type functions.

In our example, I sent mail to **listserv@ucsd.edu** (the **server**) to subscribe to **ham-ant**, the amateur antennas list. I can then communicate with the other list subscribers, like this:

To: ham-ant@ucsd.edu

Subject: Help – portable HF ant recommendations?

Hi everyone,

Can anyone recommend a good compact HF antenna for portable use?

Thanks & 73 Richard VK2SKY

Indigestion

Normally, if ten list subscribers send messages to the list, you will receive ten e-mails, one from each subscriber. On

lists with lots of traffic, this means your e-mail "in tray" can look very full each day! Some people may prefer the *digest* form, where the day's submissions are gathered together and sent out as a single message. If a list is available as a digest, its name usually reflects this (see tables.)

Mailing List Etiquette

When you first subscribe to a mailing list, it's a good idea to be "read-only", until you get a feel for the kind of messages that are appropriate for the group. If you find you want to discuss a topic that is outside the guidelines for the list, then find a more appropriate list. Apart from that, what guides your behaviour on-air should serve you well on the net.

The End of Amateur Radio?

As I said at the start, I'm not out to "prove" that the Internet will be the demise of amateur radio, rather to show that it is different, and useful to us in many respects. Whether it's digging up a modification for your old rig, finding out the latest DX news or propagation conditions, or arranging a sched with other amateurs who share your special interests, I hope you'll find the Internet an enjoyable addition to your on-air activities.

If you have any questions, please feel free to email me at the address below.

Reference

[1] *A Radio Amateur's Guide to the World Wide Web, Amateur Radio, July 1996*

* PO Box R153, Royal Exchange, Sydney NSW 1225
Internet: richardm@zeta.org.au
Web: <http://www.zeta.org.au/~richard/>

ar

MajorDomo servers
majordomo@world.std.com
majordomo@contesting.com
majordomo@qth.net
majordomo@NETCOM.COM

ListServ servers
listserv@ucsd.edu

Here are a few of the most useful commands for these servers:

	MajorDomo	ListServ
To get a full list of available server commands:	help	help
To find out what lists are available on this server:	lists	index (list names only), or
longindex (with details)		
To join the xyz mailing list:	subscribe.xyz	subscribe.xyz
To remove yourself from the xyz list:	unsubscribe.xyz	unsubscribe.xyz

Table 2

Don't buy stolen equipment – check the serial number against the WIA Stolen Equipment Register first

■ Rotators

Emotator Antenna Rotator Model 501-CXX

Ted Wraight VK3ALT performs some fault rectification on his antenna rotator.*

Does your Emotator rotator need a little attention? Well, maybe this information will help somewhat.

I had a problem with my Emotator 501-CXX not locking, allowing it to rotate according to the wind. There was no alternative but to drop the antenna and remove the rotator for inspection. Having already taken it down on a number of occasions I was not too confident that I would find where the locking devices were. Removing it from the tower was the easy part; here is a description of the harder part.

Placing it on the bench I removed the six screws from the top of the main body, being careful not to lose the top row of ball bearings located just above the large gear within the top section of the housing. In order to remove the screws you have to have the rotator upside down, with the mast housing on the bench. Hold it there while you gently turn over the main bottom section above it, allowing any bearings that have a mind to roll away to roll into the upturned top section. Leave them there until needed for refitting after you have cleaned and regreased the housing.

Before you put the main body of the rotator down on the bench, remember that there is a second run of bearings on the bottom section. Be very careful that these do not drop away from the underside of the main housing or you will spend the rest of the day trying to locate the little blighters. If you are lucky, like I have been on all occasions that I have dismantled mine, they should behave and stay stuck in place with the help of the grease, and also the neoprene seal if it has not deteriorated too much. You may wish to drop the ring with the bottom bearings, but I did not find it necessary to do so.

Turn the body over, placing the flat to the bench and remove the screws holding the micro-switches and the actuating lever between them. Check the switches to see they are not burnt or corroded; replace if necessary. Next, take out the three screws holding the two plates, laying the heavy thick plate aside to provide enough room to remove the gear train without straining the wiring to the potentiometer.

The first gear to come out is the one which protrudes out the side of the housing and drives the ring gear. With this one out, it's time to take the loose ring away to enable the remainder of the gears to be removed, taking care, again, not to lose the spacer from the underside of the gear. You should now be looking at the centre of the motor shaft right about where that tiny little gear (less than 10 mm) lives and which drives your great beam around. Don't be deceived! Under that tiny little gear with its plastic housing is not an oil wick to an oilite bearing but a clutch and housing. No wonder I failed to see it the first few times around! To get at it you must first remove a very small circlip. A small screwdriver to the side will take it out but watch that it does not take off to somewhere where you can't find it.

Next, remove the diecast section with the two legs that project down into the housing, noting carefully which way it is to be returned against the spring within.

Two screws hold the plastic/nylon housing. Remove them and withdraw the housing, together with the spring, again noting its position in relation to the centre shaft section.

The experts will tell you that it is not correct to lubricate certain nylon and metal combinations. So, with that in mind, on this occasion I cleaned them and replaced them.

I put the lot back together again and on to the tower. Yes, you guessed it, still not locking! I should have known better as, in the past, I have found that the only way to stop wear on these parts, as well as make for smoother running, was to lubricate them. So before you put it back, lubricate it!

So, I pulled it down again and lubricated it with just a smear of silicone grease which I had occasion to use in the service industry. You may do just as well with an alternative such as automotive grease, which is what I used for the bearings and gear train. Don't forget the circlip after you put the diecasting, with the gear on top of it, into the nylon housing.

As you assemble the unit you may still find that it does not point where you want it

to. Good old Murphy! Well, you will notice all the Japanese lettering around the top of the pot with the only thing recognisable being one arrow. This must point to a small dot on the centre gear, the one with the arm on it. You will have to look quite closely to see it. Rotate the centre gear until they match exactly opposite each other. The arm attached to the centre gear appears to serve no other purpose than to facilitate the rotation process for this adjustment.

Having arrived this far, we now proceed to the refit of the first two sets of gears, then the ring, and finally the remaining gears, with the one that hangs out the side.

Refit the plates, then the micro switches and the arm between them, and then all the re-lubricated bearings. They stick better with plenty of grease. The next step is to note where the two little humps are in the top of the housing. These are the stops that trigger the micro switches. With the top half of the housing on the bench facing up, bring the bottom section over and place it within the half with the micro switches in a position exactly 180 degrees to the cut-off humps.

When you have refitted the unit to the tower first check on your console to see if it is indicating north. If you have done it correctly it should. Now to determine which way your tower points when you lay it over.

Mine points to 125 degrees, with the reverse at 305 degrees. Set your console to the appropriate heading and then and only then fit the mast and antenna to the rotator. Up with the tower and you are back in business. The antenna should now, if all has gone according to plan, face the correct direction and lock at the right moment.

Console Back Panel Problem

This particular model comes with a panel that does not eliminate the possibility of sudden death, or at least a severe dose of AC jitters. I'm not one for hanging on the end of an AC line, but that is what happened with mine. Perhaps there are others out there which are similar, as I doubt if mine was the only one made like it.

I discovered that mine had an enlarged opening in the back to allow the six pin plug to be fitted within the cabinet of the console. This is fine if, for some reason or other, you don't have to reach over from the front to check that the plug is secure in the socket. Nasty stuff AC; the response is immediate and the result never uncertain; I can vouch for that! You will need to make up a small plate to cover the oversized hole. It can be as large as the cord entry hole will allow and easily secured with those ever-useful self tappers.

*8 Gregory Court, Pakenham VIC 3810

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ALARA

Sally Grattidge VK4SHE*, ALARA Publicity Officer

Traveller

Darlene WD5FOX, sponsored by Valda VK3DVT, flew to London in May this year to stay with Roger G3LQP and XYL Beryl. At Heckington in the Midlands she had her first eyeball with Diane GORHL and OM John GORHM. Darlene had tried once before to meet Diane without success. Diane was living in Kenya in 1971 when Darlene called in, only to find nobody home.

Darlene has corresponded with Diane for 26 years, talked to her by radio from the Seychelles when she was VQ9DC, on her Des Roches' DXpedition in 1973, and in South Africa where she was ZS5DC. Diane, and the windmill in her village, were mentioned in *Amateur Radio* in February this year.

While in England, Darlene also met Rita G0EIX and OM Brian at a pub on Epsom Downs. Darlene plans to visit Austria and Switzerland early October and hopes to meet up with Greta HB9ARC.

Spreading the Word

Dot VK2DDB is giving a talk on ALARA to the Mid South Coast Club in November. She spoke to this group a few years ago on early radio ladies, but when someone recently asked her if there were any ladies in amateur radio she thought it was time for another talk.

VK2 is not as well represented as other states in ALARA; where are you ladies? Are you all rugged individualists who don't like joining organisations? Being an ALARA member is not very demanding or expensive and keeps you in touch with what other YLs are doing in Australia and overseas. Why not give it a go?

YLs on Willis Island

By the time you read this the Willis Island DXpedition will be over, hopefully with many contacts. Three YLs took part in this adventure - Ann WA1S, Elvira IV3FSG and Noriko 7K3EOP.

Introducing Akemi

Akemi JK6ARD is called Mei by her friends. This comes from one of the Chinese characters which sounds like the month of May. Akemi has been an amateur for nearly ten years and, since upgrading her licence, has enjoyed DX on SSB and RTTY. She also likes "friendly party type" contests, and hopes to make some contacts in the ALARA Contest in November.

Akemi's OM is Hiro JK6IPD, and her son Hiro Junior JM6EAW is fifteen years old. Her hobbies are Tea Ceremony, reading historical documents written in old style Japanese, computer work, and singing. She has been a member of ALARA since 1993 when she visited Australia and met Erika VK3EAB (sponsor) and Robyn VK3ENX.

At the 40th JLRS Convention in Tokyo, Akemi was asked to be editor of the JLRS Newsletter (English Version) for two years. She is looking forward to improved propagation between JA and VK so be sure to say "Hi" to Akemi if you hear her on the air.

ALARA Contest

Don't forget the ALARA Contest on Saturday, 8 November (details elsewhere in *Amateur Radio*). This is the contest for YLs, and others, who don't usually like contests because all you do is swap numbers. You can do that too, as hard and fast as you like, and be rewarded by a big score; but, if you just like to chat and catch up with those YLs you

only hear once a year, that's fine.

Our Birthday net in July this year was a bit of a non-event, as several key operators were otherwise engaged, or forgot, and a few who listened and decided no-one was there didn't call so no-one knew they were there! So, let's make the Contest a fun get-together to make up for it.

The Rhododendron Festival Award 1997

Dawn ZL2AGX

Rules

1. The Award will run from 1 November to 16 November 1997 inclusive. It is available to all amateurs and short-wave listeners.

2. Contacts may be made on any band, any mode. Each station may be worked ONCE ONLY for each separate application for the Award.

3. New Zealand stations require 25 points from those listed below:-

- Compulsory contact with Special Event Station ZL6RFA - five points;

- Contact with Taranaki Branch Stations: New Plymouth Branch, ZL2AB; Hawera Branch 14, ZL2AWW; Rahu Coastal Branch 32, ZL2ANN; Waitara Branch 47, ZL2TO; and Patea Branch 54, ZL2QF - three points; and

- Each additional Taranaki Station - one point.

4. Overseas stations require only six points, calculated as above, and do not have to make a compulsory contact.

5. Copy of log and fee to arrive before 31 January 1998 to: The Award Custodian, NZART Branch 27, C/o 45 Robe Street, New Plymouth 4601, New Zealand.

6. Fee covering certificate and return postage is \$6.00 each for ZL award applications; and \$US5.00 or fair equivalent for all overseas award applications. No stamps please!

General

There are six different rhododendrons in this series. Each is a limited print with the kind permission of local artist Janet Marshall. The print to be used in 1997 is the third in the series, *R. xanthostephanum* previously used in 1991.

ZL6RFA and Branch Stations will be operating on a roster basis during the Award period, on or about these frequencies on phone on most nights from 0700z: the Rhodo Net, 3.593 MHz; the ZL Awards Net, 3.677 MHz; and popular VHF and UHF frequencies. Any amateur frequencies may be used.

*C/o Po Woodstock, QLD 4816

Tel: 077 788 642

Fax: VK4SHE@VK4RAT.NQ.QLD.AUS.OC

Internet e-mail: rgratid@ozemail.com.au

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VK QSL BUREAUX

The official list of VK QSL Bureaux. All are Inwards and Outwards unless otherwise stated.

VK1	GPO Box 600 CANBERRA ACT 2601
VK2	PO Box 73 TERALBA NSW 2284
VK3	40G Victory Blvd ASHBURTON VIC 3147
VK4	GPO Box 638 BRISBANE QLD 4001
VK5	PO Box 10092 Gouger St ADELAIDE SA 5000
VK6	GPO Box F319 PERTH WA 6001
VK7	GPO Box 371D HOBART TAS 7001
VK8	C/o H G Andersson VK8HA Box 619 HUMPTY DOO NT 0836
VK9/VK0	C/o Neil Penfold VK6NE 2 Moss Court KINGSLEY WA 6026

AMSAT Australia

Bill Magnusson VK3JT*

National co-ordinator

Graham Ratcliff VK5AGR

Packet: VK5AGR@VK5WI

E-mail: vk5agr@amsat.org

AMSAT Australia net:

Control station VK5AGR

Bulletin normally commences at 1000 UTC, or 0900 UTC on Sunday evening depending on daylight saving and propagation. Check-ins commence 15 minutes prior to the bulletin.

Frequencies (again depending on propagation conditions):

Primary 7.064 MHz (usually during summer).

Secondary 3.685 MHz (usually during winter).

Frequencies +/- QRM.

AMSAT Australia newsletter and software service

The newsletter is published monthly by Graham VK5AGR. Subscription is \$30 for Australia, \$35 for New Zealand and \$40 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:

AMSAT Australia

GPO Box 2141

Adelaide SA 5001

Keplerian Elements

Current keps are available from the Internet by accessing the AMSAT FTP site, <ftp.amsat.org> and following the sub-directories to "KEPS".

Auto-track Accuracy

Last month a software update was announced on KO-23 by Roy W0SL. I corrected a small error in the Windows Driver for the Kansas City Tracker/Tuner. This program is used in conjunction with WISP for ground station control when using the digital "PACSAATS".

A lot of people use this system but the error probably went unnoticed by most users. I certainly had no reason to suspect any inaccuracy. I had been in the practice of checking (usually every six months or so) by over-riding the auto-track system while it was in operation, momentarily nudging the up/down, right/left buttons on the control box while watching the "S" meter. Normally the "S" meter reading would go down slightly and then back up as the auto-track took over again. This satisfied me that the system wasn't too far off line. Every now and then

the "S" meter would rise slightly but I put that down to incorrect computer time or old keps, either of which could have that effect.

After installing the upgrade I thought I'd give it a thoroughly good test under actual working conditions. You can do this by setting it up to track the Sun if you have a set of Sun "keps" in your computer. A word of warning, though! Some of these are very unreliable and need to be checked against a good astronomy program to see if they do really tell your rotators the exact position of the Sun.

I use another method which, as far as I can ascertain, is very accurate. Keplerian elements are available for all the large satellites which are visible shortly after sunset each clear night. The keps are in standard NASA format so they will work in any of the commonly used tracking programs. After making sure the computer clock was accurate to within a second or so, I set the auto-track system to track one of these satellites which happened to be visible that evening and went outside to look up along the boom of the antennas. Presto! there was COBE, right on target.

My satellite antennas, like most, are quite low so this method does not present too much of a problem except at very low satellite elevations. It enables you to check the TOTAL accuracy of your system including the amount of incremental movement, the lead or lag, and the "dead-time" of your rotator system.

There is no shortage of visible objects to track. Many such satellites and expended rockets are in orbit. I use software called SatSpy-2 to decide on which object to track. The author of SatSpy, Dave Cappellucci, maintains a database of NASA 2-line element sets running into thousands of such objects. The keps are freely available at his web site, <http://www.usa.net/acappella/> which also contains a sample version of SatSpy for downloading and evaluating. The fully functioned version is well worth registering. I reviewed it in the February 1996 column.

During some (KO-23) correspondence with Manfred XQ2FOD on this matter, he made the following suggestion which is worth passing on as an example of the use of modern technology in setting up a tracking antenna. Manfred said, "I went to a mountain that is in direct sight from my rooftop, and memorised the position in my GPS receiver. Then I returned home and asked the GPS to tell me the exact azimuth from my home to that mountaintop. I sent the rotator to that

position, at elevation zero, then climbed my roof and adjusted the antennas to point to the mountain. I adjusted the elevation with a level gauge".

He went on, "This method easily reaches two degrees accuracy, which is better than the rotator's potentiometer, and the meters, and fits very well in the 20 degree beam-width of my UHF antenna".

Manfred also made the following important observation, "The computer time is MUCH more critical than old keps. If you have your computer time 10 seconds off, this will cause much more error than keps that are one month old, unless you are tracking something unstable like MIR".

Thanks to Manfred for these observations. It reinforces my earlier suggestion of using a program like AccuSet to keep your computer time absolutely spot-on. UO-22 users can opt to update their computer time from the time frames broadcast by this satellite every 10 seconds. It must be remembered that, in all these tests and set-up procedures, you are making one important assumption. That the main radiation lobes from your antennas are in fact in line with the booms. Don't laugh - check this out first! You may be surprised.

Please don't ask me what to do if you find (as one friend did) that the main lobe from his 2 m antenna was slewed away by something like 40 degrees. This situation is most likely caused by some physical error in construction and errors of this magnitude should not be too hard to correct. Good tracking software allows for slight slewing error correction but it's best to play safe and do what you can to ensure that your antennas are in fact radiating in the direction they are pointing!

Long Haul on KO-23

I noticed an interesting message recently on KO-23. A station in Colombo, Sri Lanka, reported seeing uploads by two stations in Perth WA. Being an "Easterner" I have no idea if this is a common occurrence. The footprint would not cover both these areas for long but it raises the possibility of some interesting satellite DX from Perth on some of the higher satellites like the RS series. Here in the south-east we have windows to ZL, Antarctica and some of the islands to the north, but that's about it as far as the LEOs are concerned. Long live store and forward!

Whatever Happened to Baby Jane?

I'm often reminded of the old Joan Crawford/Bette Davis classic movie when I'm asked, "Whatever happened to xxxxx?" by someone seeking to know the exact reason why a particular satellite was lost to the amateur service.

It's hard to keep up with the precise

technical details and they are not always easily understood by the layman. Usually the explanations appear soon after an incident and they are easily forgotten.

Recently, Chris Jackson G7UPN, in response to such a question, again explained the reasons for the removal of UO-14 from amateur service. "Earlier this year the secondary On-Board-Computer (OBC) on UO-14 failed after a high energy radiation hit. The primary OBC is still functioning 100%, as is the third OBC. However, neither of these computers are available for use as store and forward communications servers. It's possible that UO-14 may make its way back to the ham bands in the future".

It has been a bit more difficult to find the precise reason for RS-10's apparent demise. It fell silent in late May this year and, as far as I know, is still silent. No further explanations have been forthcoming from the control centre.

The much heralded Arsene satellite suffered a similar fate a few years ago. After a very promising start and a superb orbit it went silent and once again little explanation was published as to the actual cause.

DOVE, DO-17, has had a chequered history of periodic problems but the controllers are always forthcoming with a reason and program of repairs. I believe it is again undergoing a software upload.

Tom Clarke's explanation of the reason for MO-30's sad demise was fully covered in this column few months ago.

As far as I know RS-16 is still silent with no imminent hope of recovery. I have not seen any explanation published as to its cause of failure.

New Satellite from Surrey

In the June column I reported the news that Surrey University was about to add to its stable of UoSat birds. Chris Jackson G7UPN, in an article in *Oscar News* for August 1997, has described the first of a new series of UoSats. To be known as TMSAT-1, it has been built in collaboration with an organisation in Thailand as part of the University's on-going technology transfer program.

TMSAT-1 will have an amateur radio component which will take the art into the next century. Until now the fastest data rate available to the amateur radio satellite community has been 9.6 kb/s and, although this is quite fast, it is far behind the common Internet user rates of 28.8 kb/s and higher.

One of my non-ham friends keeps reminding me of this fact. He'd better duck for cover now because as well as a 9.6 kb/s downlink, TMSAT-1 will have a working downlink running at 38.4 kb/s as well as an experimental transmitter running at 76.8

kb/s. The 38.4 kb/s downlink will require a totally new approach to receiver design. It will not be possible just to add wider filters to a normal rig as in the case of 9.6 kb/s.

At present it looks as if a complete new receiver chain will need to be designed and no such device is available commercially, at least not in the amateur sphere. It seems that this puts it firmly back into the realm of the home builder, at least in the foreseeable future.

The new higher baud rates will make it possible to handle the very large files generated by the high definition cameras on board TMSAT-1. New picture file processing software will also have to be developed. The ultimate resolution of the earth-imaging system will be better than 100 metres/pixel for the narrow angle camera and 2 km/pixel for the wide angle camera. File sizes of three megabytes or more can be expected, hence the faster downlink baud rates.

This is a most exciting prospect and will amply reward those who make the effort to get an earth-station up and running for TMSAT-1. 100 metres per pixel compares more than favourably with the NOAA weather satellites when working in high resolution mode (HRPT). If all goes well we can look forward to some spectacular imaging.

"In Case You Think Nothing's Happening" Department

Some folks seem to think new satellites grow on trees. Many take for granted the enormous amount of work that goes on behind the scenes. Take this quote from a recent AMSAT-NA news bulletin for example: "An international team of Phase 3D project workers assembled on August 18th at the Phase 3D Integration Laboratory in Orlando, Florida, USA to continue the final mechanical and electronic integration efforts on the satellite. Teams from Germany, Belgium, Slovenia, Hungary, Japan and the Czech Republic joined their American counterparts in an all-out marathon to prepare the satellite as quickly as possible for a safe and successful launch. Workers at the Orlando Integration Lab were racing to make the needed structural modifications to the satellite since it became known that Phase 3D would, during its planned Ariane 502 launch, most likely encounter environmental loads greater than those originally stated."

"Keith Baker KB1SF, AMSAT-NA Executive Vice President, reports from Orlando that these significant mechanical upgrade efforts are proceeding. "The folks here at the Lab have been burning the midnight oil over the past several weeks to make these structural changes on a work schedule where 16 to 18 hour work days have

been the norm, rather than the exception", Keith said.

"He went on to note that, "These people have done an absolutely superb job under some extremely difficult circumstances. We all owe them a tremendous debt of gratitude for their outstanding work."

"Over the last week, these round-the-clock efforts continued with the combined team's current activities installing and checking out a significant number of the remaining electronic and mechanical pieces into the satellite. Such efforts included installation and checkout of the spacecraft's momentum wheels, the RUDAK digital experiment, and the 2.4 GHz and 24 GHz transmitters, as well as a number of other transmitters, receivers and other equipment, some of which were being re-installed after having been previously removed to facilitate the structural modifications."

All the above is in addition, of course, to the unaccountable number of VOLUNTEER hours needed to design, produce and test the components of Phase 3D in the first place. How many of us will remember this when we press the button and hear our voice come back from P3D?

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ARDF - Amateur Radio Direction Finding

Ron Graham VK4BRG*

Here it is. A new column in *Amateur Radio*. What name should this column have?

Various names describing the activity commonly known as "fox-hunting" exist. As well as fox-hunting, some others that seem commonly used are radio sport, radio orienteering, foxeering and ARDF. My personal choice is *ARDF - Amateur Radio Direction Finding*, as it seems to best describe the actual activity, particularly to a non amateur. And these are the people to whom we often have to relate. They are the ones that, noticing our strange (to them) activities say, "hey, what are you people doing?". We need a simple answer, one that isn't ambiguous, and one that may be expanded on should they ask more questions. So, how about ARDF?

In choosing this name, it is my idea that, for the purposes of this column, all Amateur Direction Finding activities be grouped under this name, mainly for a matter of convenience. One can fully appreciate that various ARDF Groups around the country will retain their favourite name, one which is meaningful to them in their area and to their particular activity.

I think one of the main purposes of the column should be to inform and possibly bring together various people around this country who have an interest in ARDF. I have a strong impression that there are a number of groups who are actively engaged in, or would like to be engaged in, ARDF activities of one type or another and who are completely unaware of the existence of other groups.

To assist in publicising these various groups it is proposed to ask them to forward details of their activities, contact person, etc, and then to publish that information in this column. Further, it is thought that this information could be correlated and published annually thus giving an overall view of ARDF activity in Australia.

This would enable, amongst other things:

1. People in various areas to find existing groups;
2. If there isn't a group, to be able to form one, hopefully via their local Club;
3. Visitors to an area to "check out" what's happening in that area; and
4. Groups to be made aware of neighbouring groups and thus organise exchange visits, swap ideas, and arrange some friendly competition, etc.

Enlarging further on the above theme, I

think the direction that this column takes should be guided by the input from the various ARDF Groups. In fact, the long term existence of the column will need continuous input from others; details of what you are doing, the odd "interesting" ARDF related story, ideas regarding "rules" that you use, etc. Plus, of course, the new - new ideas, new techniques, details of new equipment and so on.

There does seem to be a fair bit happening ARDF-wise these days. If we can get this column running, these items can be published and, hopefully, gain momentum.

ARDF is on the agenda for the Region 3 IARU conference in Beijing during August. New "technical" rules will be discussed and, hopefully, introduced. Some ideas that these could introduce would make ARDF more interesting to both contestants and spectators, would allow the use of cheaper (more readily available equipment, eg FM), less physical endurance to suit warmer climates (existing rules originate from the colder climate of Europe), having multiple transmitters transmitting at the same time and thus provide more of a technical challenge, are just some examples. I think the idea is that existing rules will remain for the serious international competition, but concurrent competitions using the new rules will also be run. Wally VK4DO will attend (self-funded), so we will have a first hand report on his return.

JOTA isn't far away. The use of some form or other of ARDF is definitely on the increase for JOTA. I was pleased to note that mention

was made of "fox hunting" in the paperwork circulated to our local Sarina Scout Group from the Scout HQ. It even gave some examples regarding simple equipment. Hopefully, Scout and Guide interest in ARDF will continue to grow. We should be able to assist!

I have also been approached by FARS (Friendship Amateur Radio Society) International regarding the establishment of a FARS Australia. Briefly, FARS was formed about 10 years ago between a Group in Victoria, BC, Canada and a Group in Kabarovsk, Russia. Since then, Groups have been formed in Japan and USA. They have a strong interest in ARDF plus other amateur radio related activities like CW and contesting, although it appears to me that the actual "friendship" or social contact between Groups is about equally important as the sum of the previously mentioned activities - a nice aspect in my opinion. They have a "get together" every two years. One has just concluded in Japan with the next being scheduled at Portland, Oregon, USA in 1999. A suggestion has already been made to the effect that they would "strongly consider" the possibility of holding the year 2001 event in Australia should a Group actually be formed here.

Personally, I think it would be great to form FARS Australia, although it would mean a certain commitment on our behalf. I think, to organise and actually send a reasonable size team to the bi-annual events. Finding suitable keen CW operators may prove another challenge. Although it appears it isn't essential that each Group take part in all activities, it would be nice to show the flag!

In closing, I would like to say that I am happy to assist in getting this column established in *Amateur Radio* magazine. The current thoughts are a column on a bi-monthly basis. It will DEFINITELY need input from others to continue. As previously mentioned, there seems to be a reasonable amount currently happening on the Australian ARDF scene. That activity will also need input from various parties if we are going to maintain, and hopefully increase, activity. Importantly, I do think ARDF could prove to be a way of introducing young people to this aspect of the hobby, and possibly onto other amateur radio related activities.

To start that input, I can be contacted via the addresses below, although e-mail is preferred.

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ar

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Awards

John Kelleher VK3DP - Federal Awards Manager*

The Green Award

From time to time a little gem of an award appears on my desk. This one originated with Toly UT3UY, who was the leader of the original DXpedition to Libya in July 1995. It came to me via Steve VK2PS.

This award can be obtained by licensed radio amateurs and SWLs for contacts with 5A1A in July 1995. Two contacts are needed, two different modes, or two different bands. Please send your list of contacts with a fee of \$US10.00 or 18 IRCs (or equivalent) to: Anatoly Kirilenko UT3UY, PO Box 439/3, Kiev-151 252151, Ukraine.

605DX

A note from 605DX requests that the following VK4 stations please acknowledge contacts with him. All are SSB.

1991: VK4LR, NHJ, DMJ, DPB, AFL, JV, JDH, DBB, SAA, GBT.

1992: VK4NAD, NHM.

1993: VK4KPB.

1994: VK4AUD.

1995: VK4OJ, VK4UA.

I must admit that information was indeed scarce, to the point that I do not possess QSL or manager directions. Perhaps a short note to VK4CY may bring some results.

Rally Australia Awards

The Redcliffe and District Radio Club Inc has responded to my plea for information on local awards. The following comes from their Awards Manager, Kevin Jones VK4AKI.

1. The object of this award is to travel around Australia by radio, making progressive contacts as you go. Valid contacts are those made on or after 1 October 1986.

2. The award is available in two grades:

(a) The BASIC award is a two colour certificate printed on parchment style card.

(b) The ENHANCED award is an etched aluminium plaque in gold on a black background. It will be engraved with the recipient's details.

3. The two grades are totally separate awards. It is not necessary to complete the Basic Award before attempting the Enhanced Award. Contacts made for one award DO NOT count toward the other.

4. Band and Mode endorsements are available. Packet contacts are valid.

5. Short-wave listeners are eligible to participate in these awards. The following rules, with the inclusion of the call signs of both stations logged, apply.

6. Basic Rally Australia Award

(a) This award requires contacts with 25 cities and towns around Australia.

(b) The FIRST and also the FINAL contact must be with a Redcliffe and District Radio Club member. These contacts are deemed to the Redcliffe checkpoint regardless of the member's QTH.

(c) The following Cities are MANDATORY checkpoints: Redcliffe, Brisbane, Sydney, Canberra, Melbourne, Hobart, Adelaide, Perth, Darwin, Mount Isa, Townsville, and Redcliffe.

(d) A further two contacts in each of VK2, 3, 4, 5 and 6 with a further one contact in each of VK1, 7 and 8, made in progressive order along with the mandatory contacts.

(e) The Rally may be run in either direction, ie Redcliffe-Sydney or Redcliffe-Townsville, etc;

7. Enhanced Rally Award

(a) This award requires the accumulation of 1000 points from progressive contacts throughout Australia.

(b) Contact with all the mandatory checkpoints (as per the Basic Award) are required.

(c) Points are awarded for contacts with VK1 (20 points), VK2 (10), VK3 (10), VK4 (10), VK5 (10), VK6 (10), VK7 (20), and VK8 (20).

8. Applications:

(a) The applications for these awards should be accompanied by a certified log extract, signed by two other amateurs, showing date, time, frequency, call sign, and location of the stations worked.

(b) The fee for the Basic Award is \$5.00 or five IRCs.

(c) The fee for the Enhanced Award is \$25.00 or 25 IRCs.

(d) Applications for either of these awards go to: The Awards Manager Redcliffe Radio Club Inc, PO Box 20, Woody Point QLD 4019, Australia.

9. Contact Information.

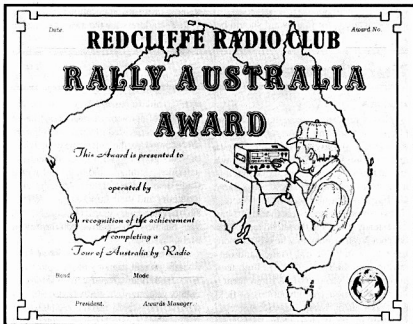
(a) Contact with a Redcliffe Radio Club member is only required for the start and finish contacts. Any licensed amateur may be worked for all other districts.

(b) The Redcliffe and Districts Radio Club conducts the Club Net every Sunday on 3.612 MHz at 1930 EAST under the call sign VK4RC. Club station VK4IZ can also be heard in most VK contests. A list of members can be obtained by sending a SASE to the Awards Manager.

Redcliffe City Award

1. This award requires an amateur in VK or ZL to contact six Club members to qualify - VK4RC and VK4IZ count as two members.

2. Any amateur station in Region 2 or 3 (SE Asia, North or South America) requires contact with four Club members to qualify. Again VK4RC and VK4IZ count as two members.



Rally Australia Award - 261 x 212 mm.

REDGLIFFE CITY AWARD



Awarded to

for radio contact with
REDGLIFFE CITY RADIO CLUB MEMBERS

Award Number

Mode Date

Awards Manager

Redcliffe City Award – 212 x 187 mm.

3. Any amateur station in Region 1 (Europe, Asia, Africa) requires contact with three Club members to qualify. Again VK4RC and VK4IZ count as two members.

4. Band and mode endorsements are available. Packet contacts are valid. SWLs are eligible to participate.

5. Applications for this Award should be

accompanied by a log extract showing date, time, frequency, call sign and location of the stations worked.

6. Fees to cover the cost of the award, \$AUS5.00 (VK/ZL/P29), \$US5.00 (Regions 2 and 3), or five IRCs (Region 1), must be included with any application.

7. The address for the awards manager is

the same as for the two Rally Awards above. The packet address is: VK4ITM@VK4ITM.#BNE.QLD.AUS.OC

Mongolia – The Saga

Readers may remember a reference to an award applied for by a member early in 1993. By June of that year the member had received a letter from officials of the Radio Club in Ulaan Bator that he had been awarded certificate #1. The member then followed up on this information by airmail, then registered mail, and by postcards, to no avail. He tried an alternative Box number, and went through the whole cycle again. Still no action.

A phone call from Steve Pall VK2PS (that man again) shed some light on the problem. A friend who was a journalist, and also an amateur, was going to Mongolia and Russia to write a series of travel articles. He was prepared to visit the relevant authorities in Mongolia with enquiries about the missing award.

Some months later our member received a phone call from the itinerant journalist who had possession of his award, and would he kindly collect it. In his own words our member said, "I drove from my QTH to his at just under the speed of sound".

In passing, I also tried to shake up the Mongolian people, but I have no idea whether they received my letter, as I have not yet received a reply. I possess details of three current Mongolian Awards. If, after this "saga", I have any takers I am prepared to publish this information.

*4 Brook Crescent, Box Hill South, VIC 3128
Phone (03) 9889 8393

Club Corner

Riverina Field Day

What a rewarding weekend it was in Wagga on 9 and 10 August. This was the bi-yearly presentation by the Wagga Amateur Radio Club of the well-known Riverina Field Days. As many will know, this annual event is alternated between Albury and Wagga and it is always well supported.

However, it has been felt that there has been a steady decline in the attendance of the older conservative amateur who is often more interested in meeting old friends and rag-chewing than studying the ultra high-tech equipment and seminars that often form a major part of modern conventions or field days. This trend of "losing the older amateur" was something the Wagga organisers decided to arrest if possible.

In a bid to attract some of the older stalwarts of our hobby back to the "field day fold" it was decided to strike a compromise this year to mix the older type of activity (as of years gone by) with modern electronics activities, seminars, and bells-and-whistles trade displays, etc. The aim was to attract amateurs and their families back to events such as our country field day, complete with a well planned official dinner on the Saturday night.

As a result of diverse publicity and direct invitations sent to many of the "old-timers" who used to attend our conventions ten or twenty years ago, we were pleased to see well over 75 registered for the official dinner, which was opened by the president of the WIA (NSW Div) Geoff VK2EO. The guest

speaker was that well-known amateur direction finder expert Wally VK4DO, who made the trip with his cohort Frank VK4CAU from far northern Queensland.

It was a great night, particularly with the presence of so many old familiar faces and their wives whom we had not seen for years. Stacks of rag-chewing at all levels in a very cordial atmosphere ensured that the function went on into the very late hours. It should also be mentioned that we received a great many apologies from old-timers whose health or personal circumstances prevented them from attending.

The Sunday was the day of the field events, trade displays, seminars, flea market, hidden transmitter hunts, scrambles and talk-in hunts plus heaps and heaps of rag-chewing between



The trade and flea market area at the 1997 Riverina Field Day.

those that had arrived Saturday and those who swelled the attendance ranks on the Sunday.

The end-of-day closing ceremony and the presentation of prizes took place around 3 pm, to enable those who had long distances to travel sufficient time to make the return journey in a safe manner.

A great weekend and a big thank you from the Wagga Club organisers to those who attended and participated in any way. It is hoped that a similar group will make the effort to journey to Albury next August, and then back to re-visit Wagga in 1999.

Sid Ward VK2SW

Riverland Radio Club Inc

The Riverland Radio Club Inc held its Annual General meeting on 3 July 1997. The elected committee consists of David Wilson VK5NAP, President; Mike Mackintosh VK5CK, Vice President; Doug Tamblin VK5GA, Secretary/Treasurer; Tony Hutchison VK5ZAI; Adrian Reimann VK5AJR; Kingsley Brauer VK5AKN; and Malcolm Gardener VK5UBT.

The President, David Wilson VK5NAP, announced in his annual report that the club enjoyed a very active and interesting year.

At the August meeting, Jim Brown from GME Electrophone gave a very interesting talk and hands-on experience of the GPS system.

In September, members are hoping for a clear night, as a sky watch night has been organised at Adrian Reimann VK5AJR's QTH.

The club has two new members who joined at the last meeting. The club meeting night is the first Thursday of each month.

Doug Tamblin VK5GA
Secretary

Gold Coast Amateur Radio Society Inc

It's that time of the year again when the organisation for the Annual Gold Coast Hamfest commences.

The venue for the 20th Hamfest is again at the Albert Waterways Community Centre on the corner of Hooker Boulevard and Sunshine Boulevard.

Doors will be open to the public at 9.00 am on Saturday, 8 November 1997. Exhibits can be set up from 7.30 am.

The organisation committee wish to take this opportunity to invite you to participate in this annual event by displaying and offering for sale your goods and equipment or just promoting your club and hobby interest.

The charge for exhibitors is \$15.00 per table to cover the cost of space and the tables and chairs required. Two free entry passes will be given to each exhibitor.

If you wish to reserve a table or two, please apply to PO Box 588, Southport QLD 4215 by 8 October 1997. For any queries, please contact Rosemarie or Jim on 07 5525 1886 after 7.00 pm.

Rosemarie Scholz
Vice President

Coral Coast Amateur Radio Group

2100 hrs GMT 28 September 1967 – 28 September 1997 on 7.060 MHz

On 28 September 1997 the Coral Coast Group had been in operation seven days a week non stop for 30 years, having made a total of 258,320 contacts including tractor, aeronautical, marine and normal mobile contacts. During that time 43 of its members became SKs.

The instigator and net controller of the

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The IC-PCR 1000 features a choice of three different interface screens, real-time bandscope function making it easy to find busy frequencies, and an unlimited number of memory channels.

You get all this for a much cheaper outlay than buying each radio individually, and we even supply the single aerial! We've had some unsolicited feedback from those who have already used the IC-PCR - 1000 and it has been unanimous... this is one amazing unit!

IMPORTANT DATES TO REMEMBER.

Perth Hamfest
Sunday, November 2, '97

Daycom Icom Day
Saturday, November 29, '97

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One of the world's smallest 2m FM hand helds with a full-size keypad, the Yaesu FT-11R has been reduced in size but not in features. Designed to fit comfortably in your hand, it weighs just 280g.

- Large backlit LCD with full frequency readout
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- Easy SET mode for customising functions
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- Auto battery save, TX saver and power off
- Efficient FET RF amp with 1.5W RF output as standard, 5W with optional battery or DC adaptor
- DTMF-based selective calling and paging
- Extended 110-180MHz receiver coverage
- Naming of memory channels
- DTMF message paging with up to 6 alpha-numeric characters
- Australian version auto repeater shift
- 57 x 102 x 26mm (W.H.D.)
- With FNB-31 600mA/H NiCad pack, belt clip, AC charger, CA-9 charge adaptor and antenna

D 3640

\$399

2 YEAR WARRANTY

YAESU FT-736R VHF/UHF Base Station Transceiver

Whether your interest is in talking through your local repeater, operating SSB DX or talking to the world via satellite, this high-performance multimode base station transceiver can do it all! In its standard form, the FT-736R provides 25W output on the 2m (144-148MHz) and 70cm (430-450MHz) bands in SSB, CW and FM modes. Can be expanded to cover the 6m (50-54MHz) and 23cm (1240-1300MHz) bands by installing optional modules.

- Digital control with keypad VFO frequency entry
- Efficient switch mode AC power supply
- 100 general purpose memories
- 10 full-duplex memories, 2 independent VFOs per band
- 2 full-duplex VFOs: transmit and receive frequencies can be tuned independently or synchronously for satellite operation
- Adjustable IF notch and IF shift filters
- Noise blanker and 3-speed selectable AGC
- High stability (± 1 ppm) PLL reference oscillators
- Speech processor and VOX for SSB
- VFO or selectable channel steps on FM
- Digital input connection for packet TNCs

D 2920

2 YEAR WARRANTY \$2695

6m module D 2921

\$499
\$899

23cm module D 2922



FT-840 Economical HF Mobile Transceiver

A serious HF transceiver that won't break the bank and doesn't compromise performance at home like many current micro-rigs. The Yaesu FT-840 gives you full 160m to 10m amateur band coverage with 100W PEP output on SSB/CW/AM, continuous receiver coverage (100kHz-30MHz), 100 memory channels, a large backlit LCD screen, an effective noise blanker and an uncluttered front panel. The FT-840 is simple to use, with useful features like an SSB speech processor for added audio punch, IF shift to fight interference, and Direct Digital Synthesis oscillators for cleaner transmit and improved receiver performance. Includes DC power lead and hand microphone. ... just connect your power supply and antenna and start having fun.

D 3275

2 YEAR WARRANTY

\$1395



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THE NEW PHASE
3D SATELLITE WITH
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Specifications

- Modes: LSB/USB (J3E), CW (A1A), FM (F2D, F3E)
 Receiver: 50, 144MHz - dual conversion, other bands triple conversion
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 FM - better than 0.35uV for 12dB SINAD
 Size: 368 x 129 x 286mm (W.H.D.)

Offers expire 30/9/97



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- See Yaesu's latest computer control software for handhelds and mobiles.
- Huge range of all the latest Yaesu equipment on display plus a large range of antennas and accessories.
- Bring your license with you for on-air demonstrations.
- It's under cover, so come along rain or shine!
- Light refreshments available.
- One Day Sale also running in our North Ryde Showroom, so bring the family for a fun day and savings.

Where do you go?

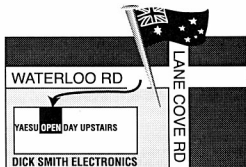
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Ph: (02) 9937 3355

Located in the Training Room. Directions will be signposted.

Plenty of free parking.



B3117

Group is Les Bell VK4LZ. Les is located in Airlie Beach and is an extremely fit 93 years of age. Les was awarded an OBE for his efforts and services in WW II in the development and operation of radar in the RAAF.

Les Daniels VK2AKZ

Northern Corridor Radio Group Hamfest 1997

The Northern Corridor Radio Group Hamfest 1997, to take place on Sunday, 2 November, is the Communications event of the year! It will have amateur radio, CB, Internet and related hobbies all displayed in the one location for people to look at, and to discuss the latest equipment and techniques with suppliers and friends.

There will be many live displays as well as a major raffle, homebuilt equipment contest, food, drink and a second hand equipment sale to tempt everyone.

The event will be held at the Cyril Jackson Recreation Centre in Fisher St. Bassendean, WA. It starts at 10.30 am and runs into the afternoon. Entry is \$3.

For more information, telephone Des on 08 9405 4215, fax on 08 9409 1203, e-mail to jmcbride@omen.com.au, or packet to vk6zj/vk6anc or vk6fja/vk6anc.

James McBride VK6FJA
Secretary,

Northern Corridor Radio Group.

RAOTC (Radio Amateur Old Timers Club)

As I write this in September, your committee is concerned that about one third of our members have not renewed their annual subscriptions which were due on 1 July.

We cannot believe that this is intentional, or that it is sending us a message apart from that we must find a more effective way to bring members' attention to the renewal date.

Arthur Evans is working on a proposal. In the meantime, it has been necessary to mail out reminders, an unwelcome expense.

We are trying hard to hold our subscription rate down to its present level of \$5.00 despite rising costs for our major expense, printing and postage of our twice yearly magazine OTN. If all the work involved in this was not entirely voluntary, we would be struggling to put out one copy each year. 'Nuff said!

Allan Doble VK3AMD
ar

Contests

Peter Nesbit VK3APN - Federal Contest Coordinator*

Contest Calendar Oct - Dec 97

Oct 4/5	VK/ZL/Oceania DX Contest (Phone)	(Aug 97)
Oct 5	RSGB 21/28 MHz Contest (Phone)	(Sep 97)
Oct 11/12	VK/ZL/Oceania DX Contest (CW)	(Aug 97)
Oct 18	Asia-Pacific CW Sprint	(Jan 97)
Oct 18/19	JARTS WW RTTY Contest	(Sep 97)
Oct 18/19	Worked All Germany Contest (Mixed)	(Sep 97)
Oct 19	RSGB 21/28 MHz Contest (CW)	(Sep 97)
Oct 25/26	CQ-WW DX Contest (Phone)	(Sep 97)
Nov 1/7	HA QRP Contest	
Nov 2	High Speed Club CW Contest	
Nov 8	ALARA Contest	
Nov 8/9	WAE RTTY DX Contest	(Jul 97)
Nov 8/9	OK-DX CW Contest	
Nov 15/16	IARU Region 1 160 m Contest	
Nov 22/23	CQ World-wide DX CW Contest	(Sep 97)
Dec 6/7	ARRL 160 m Contest	
Dec 13/14	ARRL 10 m Contest	
Dec 27 -		
Jan 25	Ross Hull VHF/UHF Contest	
Dec 31	ARRL Straight Key Night	

There is a list of jokes doing the rounds at the moment, which start off with "You know you're a ham when..." followed by things like "the telephone rings and you answer QRX", or "you celebrate your wife's birthday by taking her on a romantic camping holiday, which just happens to coincide with Field Day", etc. Digging in the backyard today, I discovered a new one: "You know you're a ham when you're laying extra soil to level out the lawn, and you start worrying about the loss of antenna height" (it's true!)

Our contest managers do their best to keep entrants happy; however, feathers occasionally get ruffled, and letters appear. These range from exceedingly polite, to dark suggestions about the contest manager's sanity.

The following was received by one of our long-suffering managers recently, and I think you will agree it is a gem:

"This note is to protest about the (...) rule in the (...) contest. I find this rule particularly objectionable and repulsive, and I demand that it be withdrawn immediately! Being a contest operator and supporter of contests, we do not need such autocratic and Hitler-like rules being promulgated in the Amateur Radio Fraternity... I have informed prospective contestants that they should ignore this infringement on their rights to enjoy a hobby which they have worked hard for, and which semi-literate morons insist on fouling up!"

To the author of this rule, I suggest you withdraw it in toto; or resign from the position of being associated with this contest, or better still, commit suicide! I recommend you follow all three! This great hobby does not require such rules by self-righteous upstarts!"

As of this date, the manager is still alive. I will keep you informed of any further developments.

For information and assistance this month, thanks to VK2SRM, VK3DID, VK3DMS, HA5JJ, I2UIY, OE4BKU, OK2FD, and ZL1BVK. Until next month, good contesting!

73, Peter VK3APN

HA-QRP 80 m CW Contest

0000z 1 November to 2400z 7 November

This international contest takes place each year during the first seven days of November, and is open only to stations running a maximum of 10 W input power. Use 3560-3600 kHz, CW only. Call "CQ TEST QRP", and exchange RST, QTH, and names. Score one point per QSO with own country, and two points per QSO with others. Stations can be contacted only once during the contest for points credit. The final score equals QSO points times DXCC countries worked. Logs must show date, time, call sign, reports, and QTH and name of station worked. Summary sheet must include first name and QTH sent during the contest, Tx input power, and Tx output device. Send logs postmarked by 21

November to: Radiotechnika Szerkesztősege, Budapest, Pf 603, H-1374 Hungary. All entrants will receive participatory certificates, and outstanding scorers will receive a free subscription to Radiotechnika magazine for one year.

High Speed Club CW Contest

0900-1100z and 1500-1700z, Sunday, 2 November

This contest runs on the first Sunday of November each year, and is sponsored by the High Speed CW Club of Germany. (Anyone who has come across any of those QRQ ragchews, emanating from Germany, will recognise the challenge presented by this event.)

Use 80-10 m, and exchange RST plus serial number. HSC members will send their HSC membership number. Count one point per QSO with own continent, and three per QSO with other continents. The multiplier is the total number of DXCC countries, worked separately on each band. Note that stations can be worked once per band and period.

The closing date for logs is six weeks after the contest. Send your log to: DL8WAA, Frank Steinke, Trachenbergerstrasse 49, D-01129 Dresden, Germany.

ALARA Contest

Saturday, 8 November, 0001-2359z

This Phone/CW contest is open to amateurs and SWLs throughout the world. The object is for YLs to work anyone, whereas OMs and Clubs can work YLs only. Bands are 80-10 m, and the following frequencies are suggested: 3560-3590, 7070-7100, 14250-14280, 21170-21200, 21380-21410, and 28380-28410 kHz. Each station can be contacted twice per band - once on phone, and once on CW. No lists, nets or cross-mode contacts please.

YLs should call "CQ ALARA CONTEST" or "CQ TEST ALARA", and OMs "CQ YL". ALARA members should send RS(T), serial number, ALARA member, and name. YL non-members, OMs and Club stations will send RS(T), serial number, and name. Club stations must identify as a club station each contact, and cannot use personal call signs during club operation.

Score five points for each QSO with an ALARA member, four points for each QSO with a YL non-member, and three points for each QSO with an OM or Club station. On CW, if either operator is a Novice, score double points. SWLs should score five points per ALARA member logged, and four points per YL non-member logged.

Logs should show date/time UTC, band, mode, call sign worked, RS(T) and serial sent and received, name of operator worked,

status of the station worked (YL, ALARA, YL non-member, or Club), and points. Attach a cover sheet showing full name, call sign, operator's address, claimed score, and a signed declaration "I hereby certify that I have operated in accordance with the rules and spirit of the contest". Send the log to: Mrs Marilyn Syme VK3DMS, Box 91, Irymple VIC 3498, Australia to be received by 31 December.

Certificates will be awarded for the following: top score overall; top phone only score; top VK YL CW; top VK YL Novice CW (Florence McKenzie certificate); top ALARA member in each country and VK call area; top YL non-member in each continent; top OM in each continent; top SWL in each continent; top VK Novice; top overseas YL CW; top VK club station. Trophies will be awarded to the top scoring VK YL, and top scoring DX YL.

Logs must be legible (no carbon copies please), and will not be returned. The contest manager's decision will be final, and no correspondence will be entered into.

OK-DX CW Contest

8/9 November, 1200z Sat to 1200z Sun

This CW contest occurs in the second full weekend in November each year. Bands 160-10 m. Categories are: Single operator, single and multi-band; top operator, single and multi Tx; QRP, single and multi-band (max 5 W out); and SWL. Single operator stations operate max 20 hours, with minimum one hour rest periods. Multi-band stations apply "10 minute band change rule" (multi Tx stations are exempt from this rule).

Send RST plus serial; OK stations will send RST plus three letter district code. DX (VK) stations score 10 points per OK/OL/OM QSO, and one point per QSO with another country. Multipliers are the sum of DXCC countries and OK districts on each band; final score is QSO points (all bands) times multiplier from all bands.

Note rest periods in the log, and use a separate log for each band. Cross-check sheets are required for 200+ QSOs. Logs can also be submitted in ASCII on DOS disk. Entries should be postmarked by 15 December, and sent to: CSRK, Box 69, 113 27 Praha 1, Czech Republic.

IARU Region 1 160 m CW Contest

15/16 November, 1400z Saturday to 0800z Sunday

This year, this popular European contest is being sponsored by ARI (Italy). It is a worldwide contest, and everyone can work everyone, including stations in their own country. It is scheduled for the third full weekend of November each year.

The mode is CW only. Exchange RST + two or three letter district code (state or territory for VK). Score one point per QSO, and multiply by the number of different location codes worked PLUS the number of DXCC/WAE countries worked. Send your log to: ARI Contest Manager I2UIY, PO Box 14, I-27043 Broni (PV), Italy, postmarked by 31 December. SWL entries are also welcome.

Results of 1997 Novice Contest

Presented by Ray Milliken VK2SRM

This year, 36 contest logs were received. 33 were for section (A) phone, three for section (B) CW, and nil for section (C) SWL.

The Keith Howard Memorial Trophy was awarded to VK4NSW, the Novice with the highest score in section (A) phone, and the Clive Burns Memorial Trophy to VK5NFJ, the Novice with the highest score in section (B) CW. These perpetual trophies are held on permanent display at the Federal Office, and in each case, the winners receive an inscribed wall plaque.

National Winners:

Section A Novice	VK4NSW
Section A AOC	VK4AUG
Section B Novice	VK5NFJ
Section B AOC	VK2SPS

= National winners

** = Highest Novice score for each state (excluding national winners)

* = Special awards.

Section (A) Phone:	VK3CAM	172	
VK4NSW #	907	VK4CG	159
VK4AUG #	682	VK2RD	155
VK2AKL *	644	VK2LEE	144
VK2LTD **	552	VK6BIK	119
VK4WSS *	528	VK4OD	94
VK5MAP **	466	VK6MIN **	87
VK2LMA *	459	VK2LES	79
VK4NBC **	386	VK8AV	67
VK4CXG	341	VK5UE	67
VK4BB	328	VK2CW	25
VK1SAC	288	VK8AR	24
ZL1BVK	267	VK6JS	19
VK4MOJ	259	VK2ASK	14
VK3KQB **	250	VK2MGM	9
VK4CAT	237	Section (B) CW:	
VK2HV	226	VK5NFJ #	89
VK3JWZ	213	VK2SPS #	41
VK4JAE	206	VK4XW	22

Results of 2nd South Pacific 160 Metre Contest

Presented by Ian Godsil VK3DID

This Contest was held in July, and was quite well patronised. Comments indicated that conditions were generally good, and that it was an enjoyable event.

Divisional Notes

Forward Bias - VK1 Notes

Hugh Blemings VK1YYZ

Digital Signal Analysis

Some of you may recall the excellent presentation by Dave Cameron VK1DC at our July meeting on a packet radio set-up that utilised an IBM PC sound card as a modem and with some clever software to do the mod/demod, packetising and user interface.

After the meeting adjourned for coffee, Dave showed some interesting work that he had been doing on the "radio signatures" of the various packet users around town. This work uses the same radio and sound card hardware but different software to the packet system he described in his main presentation.

Digital recordings are made off air of the various packet stations and a log kept of the call signs that correspond to each recording. Fast fourier transform algorithms built into the software are used for frequency domain displays, conventional amplitude/time graphs being used for the time domain. The resultant frequency and time domain graphs of each transmission yield a visual signature of each station.

Careful review of this data has shown that each station has a slightly different centre frequency, amplitude and key up characteristic which makes each of these signatures distinct. Dave demonstrated the variations in bandwidth and amplitude between the signals of some local stations on air at the time. All present were impressed by the amount of information that can be gleaned from this simple analysis.

Building on these techniques, a group of local amateurs are studying the signatures of local repeater users. Thus far, as one would expect, many different key-up signatures have been identified. Although harder to discern with a voice signal, frequency response coupled with background noise analysis is yielding similar unique patterns to those found on packet transmissions.

Listening on the repeater input frequencies from two different locations, one in the North of Canberra, the other Southside/Tuggeranong, this group have also begun an analysis of the signatures of our local repeater "kerchunners". A database is slowly being assembled of these different signatures and will be the basis of a future VK1 Division award.

WICEN Activities

WICEN ACT/Monaro will be looking for volunteers to assist with the FAI Rally of Canberra which is being held on 28, 29 and 30 November this year. If you've participated before and would like to help out again this year, please contact Simon VK1AUS or Phil VK1ZPL. Simon can be reached on 2 m voice most days or on 0419 439 925. If you've not been involved in years past but would like to be, please make yourself known to Simon or Phil who will be happy to fill you in on the details. From the experience of years past, this promises to be another enjoyable weekend for all.

Coming Events

The presentation on lightning protection, which was scheduled for our September meeting, has been shifted to the 27 October meeting. The previously promised tea and coffee will also be there. Why not join us?

VK2 Notes

David Thompson VK2NH

Time Marches On

By the time you read this there will be less than 90 days to the beginning of 1998, and under three years to the Year 2000 Olympic Games. It is interesting to realise that the eyes of the world will be on us for the Games and, as was found out in Atlanta, amateur radio will be on show in a big way. In the coming issues of the VK2 Notes I will keep you informed of the NSW Division's actions in the preparation of amateur radio and the setting up of its image program for the big event.

VK2 Division Broadcast Frequency

VK2W1 has been providing a broadcast of Divisional news on 20 metres for some time now on Sunday mornings. The frequency we have been using has now come under review, due to changing band conditions and spectrum use. Soon, we will be putting a new 20 metre transmitter on air and so are taking the opportunity to review our broadcast frequency. The two under discussion have been 14.175 MHz, which is also used by the VK5 Division, and 14.116 MHz, which is activated by the Traveller's net later in the day.

The VK2 Division has decided to check out the frequency 14.116 MHz and, if it is suitable, move there later this year. Also, we

Although not the primary aim of the contest, it was very pleasing to see some DX contacts made outside the South Pacific region.

My sincere thanks to all those who participated, and especially to those who sent logs. Your comments, too, were valuable and will be a help for future years.

The only plea that I would make is for contestants to please read the scoring rule CAREFULLY. Only a few operators correctly calculated their scores, so my red pen was quite active!!

Good 160ing, and see you next year.

73, Ian Godsil VK3DID

CW	QSOs	Pts	Mult	Score
Call				
ZL2SQ *	38	166	15	2415
VK3IO *	27	123	12	1476
VK3APN	23	100	12	1200
VI3PES	20	91	13	1183
ZL1ALZ *	21	99	11	1089
VK5GN *	31	115	9	1035
VK3DID	18	75	10	750
VK8AV *	14	70	8	560
ZL4GU *	12	60	7	420
ZL2JR	10	47	10	329
VK6BEB *	2	4	1	4

SSB	QSOs	Pts	Mult	Score
VK5CRS *	70	312	16	4992
VK3IO *	51	216	12	2592
ZL2JR *	36	165	11	1815
ZL1BRY *	27	117	8	936
VI3PES	23	91	10	910
ZL3TX *	20	100	7	700
ZL2AWH	16	74	7	518
ZL1UE	16	62	8	496
ZL1ALZ	17	70	7	490
VK3DID	18	66	7	462
VK3APN	15	51	8	408
ZL1AGO	15	57	7	399
VK5GN	8	34	6	204
VK8AV *	7	35	5	175

*Certificates

Results of 1997 Waitakere Sprint

Phone:	VK4LUV	11
VK1PK	VK6JS	6
VK2XT	CW:	
VK5NFJ *	VK3APN	* 23
VK2LEE	VK8AV	* 21
VK6NU	VK2QF	* 20
VK5UE	VK5NFJ	17
VK4MOJ	VK3DID	14
VK4JAE	VK6JS	9

*PO Box 2175, Caulfield Junction, VIC 3175
puesbir@netph.org.au

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would like comments from listeners on the proposed move, to make it a successful one. Just let us know during call-backs after the broadcast, fax the office or e-mail us. A full listing of frequencies for the VK2 Division news broadcast can be found on the Divisions' page.

Speaking of frequencies, the good news (for some) is that the 6 metre repeater at Dural is expected to be operational soon. Output frequency will be 53.850 MHz while the input frequency will be 52.850 MHz.

Thredbo Disaster

The information released from the site of the Thredbo disaster makes the survival of just one person even more miraculous. I think you will agree. Dave Horsfall VK2KFU, Publicity Officer for WICEN in New South Wales sent me an e-mail. Dave told me that, while indeed, as I had reported, WICEN had not been called on to provide emergency radio communications, the body of volunteers was activated to assist Police with such things as their Disaster Victim Registration (DVR) procedures in both the registration and public enquiry aspects.

Tasks included computer entry of information from Thredbo, taking calls from the public regarding the victims, training of Police officers for these tasks, supervision of the DVR Co-ordination Centre, and liaison between the Volunteer Rescue Association operators and the Police Service. Dave tells me that some assistance was also provided to the State Emergency Service Operations Centre.

Thank you for the information, Dave. It all just confirms that we in the amateur service should be proud of the selfless contribution that WICEN makes in the times of emergency. I dips me lid to you all! Well done, folks.

JOTA

Last month I reminded you that the Jamboree of the Air is on again this year on the weekend of 18 and 19 October 1997. Hopefully, you will be helping, but if you aren't able to assist directly with communications with a group, if you hear a JOTA station and it means you can help your fellow amateurs with a contact, do so! The training and help through contacts and knowledge imparted about the hobby is very important, how little or large. Remember how much a thrill it was for you when you made your first contacts, whether on the other side of town or, if propagation permitted, on the other side of the world.

Affiliated Clubs Conference

Registrations are being called for the next Conference of Affiliated Clubs which will

take place on Saturday, 15 November 1997, starting at 0900 hrs local. The venue is, of course, Amateur Radio House at Parramatta.

Post Office Box

I have been constantly reminded, prior to my writing this column, to mention that the VK2 Division has made available a post box for those amateurs to use as their postal address for amateur radio related mail. This, of course, is a service to licensed amateurs (members of the NSW Division of the WIA) who do not wish to have their personal address published by the ACA on the Internet. If you are interested, please contact the Divisional office.

E-mail Address

Probably, by now, you know we have a change of Divisional e-mail address. If you are addressing email to the office, please do so at vk2wi@ozemail.com.au.

If you would like to contact the VK2 Division regarding your hobby, please do not hesitate to contact the office or any of the Councillors. We will be only too pleased to hear from you. If you would like to get in touch with an individual Councillor, just contact our Divisional office and it will be arranged. Our free-call phone number is 1 800 817 644 and our address can be found on page 56 of this magazine.

Next month we'll have more to report, but if you have anything you would like us to include as VK2 news, send it to me at PO Box 82, Springwood NSW 2777 or by e-mail to dthom@penrithcity.nsw.gov.au

VK5 Notes

Ian Hunt VK5QX

Hello to you. These notes have been taken from scripts used for recent Sunday morning broadcasts. I feel that, as many members do not hear the weekly broadcast, the content is quite appropriate for publication in *Amateur Radio* magazine. As I write there have been many things happening of note.

A World in Turmoil

I have been looking at the news and considering what goes on in the world.

There are some items which are quite amusing, others which are certainly educational and also instances where great developments are taking place. Most unfortunately, however, we see constant reminders of man's inhumanity to man. Not the least of these is the very sad recent news surrounding the death of Diana the Princess of Wales.



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Upon looking at the overall picture one could be forgiven for coming to the conclusion that the world is a terrible and wicked place in which to live.

You may also wonder just what place my comments may have in material produced for the Amateur Radio Service. Let me provide what may be a grain of hope amongst all this turmoil.

Amongst items presently appearing on the Packet Radio network are many messages from amateur radio operators in different parts of the world. Almost without exception these are of a nature which express sympathy, love and concern in connection with the events and people surrounding the death of Lady Diana. There is certainly a great outpouring of feeling which clearly demonstrates the fact that there are people who really do care.

Observation makes it obvious that such is not confined to amateur radio "packet" messages. It is undoubtedly occurring on other radio modes and can certainly be seen in the media at large.

Reading of the material being transmitted reinforces the belief that within the Amateur Radio Service we have the potential to do a great deal to contribute towards the understanding of others and towards international goodwill.

Based on this consideration might I politely suggest to you that, apart from just enjoying the fun of operating and taking part generally in the activities associated with our hobby, we could just now and again stop and consider for a moment how we can do a little more towards making the world a better place. I am absolutely convinced that amateur radio has a great potential for helping others in a wide ranging fashion.

Yes, the passing of Her Royal Highness the Princess of Wales should not go unmarked, even by the South Australian Division of the Wireless Institute of Australia. It is indeed a very unhappy situation.

Despite the ways of the world being as they are there is room for optimism and that hope which comes of better values as a result of the existence amongst us of people who recognise and strive to maintain such values.

A Busy Weekend

I trust that you had a enjoyable time if you entered into the Remembrance Day Contest. I was only able to listen on a spasmodic basis as I was away in the South East of the State for most of the weekend; however, it appeared that it was all going well. I did manage to make just a few contacts within the last ten minutes of the contest whilst mobile on the way back to Adelaide.

Advertising Our Hobby

Over the RD Contest weekend I did manage to demonstrate and describe quite a few aspects of our hobby to my travelling companions. I enjoyed doing this and I know that they were surprised at some of the capabilities available through amateur radio. That set me to thinking that we should take every opportunity to explain and demonstrate to people as to what our hobby is about. Perhaps, as I have, you could make a resolution to do this as much as possible.

Thinking About Ideas and Projects

I recently had occasion to enter into a discussion with another operator regarding possible projects which could be implemented and helped towards fruition by the VK5/VK8 Division. I would like briefly to discuss this aspect of our endeavours.

Included in the important reasons for having a Divisional organisation are the representation of the membership as well as the fostering of the hobby in various ways. I would like to refer briefly to the latter case.

There may be many ideas which members have that could be quite viable if given suitable planning and support. This is where the Division should make available its facilities and expertise. Here we also must depend on you, the member, in a number of ways.

First of all, you can come up with ideas and suggestions as to things which can be done. Next, you need to present these ideas to the Division. It would be most helpful if, before you do this, you take just a little time to work out a plan as to how your idea could be implemented. The better your planning and presentation of an idea the greater the likelihood of it being adopted.

You do not need to have great technical skills and capability to develop an idea and bring it up to this point. Once a plan is presented it is possible that we can find amongst the membership people with technical capability and skills which will allow the plan to be developed to the implementation stage.

One other most important aspect of such organisation is that, if such a plan is approved and put into motion, it is always likely that the WIA can find some means of funding the particular project. This of course comes about because we do have the financial support of members and with such a group can put to use a larger composite contribution than can be raised by just a few individuals.

This is not to say that we can always afford to provide large amounts of funding for everything that we might wish for. However, I am sure that you can readily recognise the

value of having a healthy membership figure and the resultant strength in numbers.

After all, why else would we wish to run such an organisation if it was not for the benefit of amateur radio and members as a whole.

So, to this end, I would encourage you towards two purposes. Firstly, to submit your various ideas for improvement and projects for the hobby and, secondly, to encourage others, members and non-members alike, to understand the value of a united effort where our resources are pooled for the betterment and greater enjoyment of all of us.

I trust that the material provided above will be of interest to you and that it may provide food for thought as to some of the things we might do and approaches we can adopt to making amateur radio an even better hobby.

"QRM" News from the Tasmanian Division

Robin L Harwood VK7RH

To celebrate World Amateur Radio Day on 20 September, the Southern Branch erected a station in the grounds of Parliament House. As they were very close to the weekly Salamanca Market, many came over to see what was going on. I will include a further report in next month's column. The monthly Northern Branch meeting was held at an industrial site in Launceston where they had a lecture and demonstration on modern welding techniques. I am sure that some will be putting it into practice with the erection of beams for the summer months.

Divisional Council also met in Hobart in late September. Results will be given over VK7WI and also in the November column.

John VK7JK, our Broadcast Officer, went on the sick list in late August and we do hope that you are much better now, John. Thanks to Andrew VK7GL for stepping in as acting Broadcast Officer until John was able to resume his duties.

This month sees the annual Jamboree of the Air (JOTA). Operations will be held in each region. The Domain Activity Centre station VK7OTC will be activated. In the Northwest, Kirby VK7KC is co-ordinating activities with several special stations planned to operate over the weekend.

Meetings for this month are: Southern Branch on Wednesday, 1 October at 1930 EAST at the Domain Activity Centre; Northern Branch on Wednesday, 8 October at 1930 Tasmanian Summer Time, probably at the Australian Maritime College in Newnham (this will be confirmed over VK7WI); and North-western Branch on Tuesday, 14 October at the Penguin High School.

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Education Notes

Brenda M Edmonds VK3KT* Federal Education Coordinator

Most of you know by now, I expect, that the documents for the Regulations examinations are available on the Internet. There are two major documents, the "Licence Conditions Determination" which I mentioned in my last column and the "Amateur Radio Service Information Papers", which comprises papers on "Amateur Apparatus Licence", "Amateur Examinations", "Amateurs visiting Australia" and "Amateur Regulations". For those who do not have Internet access, copies of both are available from the ACA (formerly SMA) State Offices.

These documents differ considerably from the brochures RIBs 70-72 with which we are familiar. To begin with, they are dauntingly large on photocopied A4 paper. I am worried that newcomers will find the total package very discouraging. The LCD is 25 pages. The

Information papers total 32 pages. However, the "Amateur Regulations" paper (8 pages) contains the material from RIB 72 except for the section on Emission Modes, which is covered in the LCD. The old document on Interference may also be required. So far I have had no indication of any parts which could be considered non-examinable, or whether the whole of the published material may be examined.

The "Amateur Examinations" is a historic document. It contains the first edition of any Australian Regulations examination syllabus. I would be interested to receive comments from readers on the topics included in it. My committee, whilst appreciating that a syllabus has at last been provided, is not wholly happy with the contents and emphasis, and has not as yet discussed the question distribution on the

papers to be prepared from it. We hope for some further modifications as time goes by. Readers will note that it includes reference to International agreements and some ITU regulations. This will broaden the scope of the examination considerably, but reflects the move towards parity with the European syllabus so that Australian amateurs can gain the benefits of the CEPT agreement.

There is still negotiation required with the ACA before we can finalise the draft Regulations question bank. The Examination committee is working on this. Candidates and instructors will be kept informed as developments occur.

I have asked that all the material necessary for the examination be published in brochures as previously, but have been told that this is not the intention, because of the ease of altering the material on the Net if required. The ACA Internet site can be found at <http://www.aca.gov.au> or hard copies from the State Offices will be downloaded as needed and photocopied.

*PO Box 445, Blackburn VIC 3130

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How's DX?

Stephen Falk VK2PS*

Some of us DXers, the big guns with high towers, big multi-band and special monoband Yagis, long-wire antenna farms, amplifiers and a host of other gadgets, are often spoilt in the pursuit of our determined goal to reach the magical 329 DXCC country status. We often tend to forget that there are others who very often, due to circumstances beyond their control, are very much restrained in their DX activities.

Ivor VK3XB phoned me the other day to tell me that he and his wife Mavis VK3KS had worked 9M6OO in the Spratly Islands. It was quite an achievement for them and they were very happy for the contacts. Why? Ivor and Mavis are not your average DXers. Since February 1991 they have lived in a retirement village, where antennas, towers, Yagi beams and dipoles are strictly not allowed. This was heartbreak news to these two amateurs, both keen CW operators, with well over 300 countries to their credit in the DXCC listing.

However, as the saying goes, "if there is a will, there is a way". After many discussions and pleas, they received permission from the village management to install a random wire antenna, which is 36 feet long (about 11 metres) and is only about 16 inches (410 mm) above the ridge-line of the roof. Fortunately above the roof under the tiles is insulated with aluminium foil which is an advantage.

Our DXers have worked already more

than 150 DXCC countries from the new location in the past six years with the 11 metre long piece of wire. They have several antenna tuners, each pre-tuned for a different band, which allows them instant switching between bands. CW is the favourite mode used. Incidentally, Ivor received his licence in 1934 and Mavis in 1939. This would indicate to you their age. Congratulations to both of them on their wonderful amateur spirit which overcame the difficulties.

The Mysterious Travels of VK9XL

In the introduction to my *How's DX?* column in the June 1997 issue of *Amateur Radio*, I described some events about Vlad UA0ZDA who was granted a short-term visitor's licence in 1996 to operate from Christmas Island.

I quoted the 4 July 1996 contact, when he used the callsign VK9XL/MM when he was going to IOTA island, AS-039.

Frank VK7BC advises me now that he also had two contacts with Vlad, our "speedy" traveller. On 18 April 1996 Frank worked Vlad from Papua New Guinea as P29VXL and he gave his Stavropol address. On 4 July 1996 Frank worked R0/KC7JEF who said that he was on Komandorsk Island (IOTA AS-039) and gave his QSL Manager as W7NJ. I checked the 1996 and 1997 US Call

Books and there is no entry for the call W7NJ.

Further research by Frank discovered that the owner of the call KC7JEF is (you have guessed it!) Vladimir Y Pichelin (spelled Pchelin) 18955 SW, Blanton St Aloha, OR 97007.

So, who is and where was our "traveller" Vlad in 1996 with the Australian callsign? Was he actually on Christmas Island, Lord Howe Island, in VK6 and in VK5, and a few days later in 4K5, again on Lord Howe Island, then in Papua New Guinea and finally on Komandorsk Island (55° N - 167° E)? Was he everywhere on dry land, or maybe he was tucked away in the radio room of a Russian "tramp steamer"? And why was he using the Christmas Island callsign in various parts of Australia and on the open sea?

When I had a contact with Vlad on 4 July he used the VK9XL/MM callsign and gave a VK3 amateur as his QSL Manager. On the very same day when Frank contacted him he was already using the R0/KC7JEF callsign. Why? Will we ever find out the full, true story of this "visiting" amateur?

Auckland Islands K8VIR/ZL9 - ZL9DX

Ed K8VIR, PO Box 480, Green Valley, AZ 85622-0480, USA was active from Auckland Island in March and April this year (see May issue of *Amateur Radio*). Not so long ago he

sent me some photographs of his activity and a pamphlet about the rules and guidelines covering the entry of tourists to these New Zealand sub-Antarctic Islands. These rules highlight the problems existing also on the Australian sub-Antarctic Islands, such as Macquarie, Heard, and McDonald, etc.

Here are some interesting points. All the New Zealand sub-Antarctic island groups are National Nature Reserves and entry is by permit only. Tourist landings are not permitted on the Bounty, Antipodes and Snares Island Groups, and unmodified or near pristine islands in the Auckland and Campbell Islands groups. Tourist groups with entry permits must be accompanied by a Department of Conservation representative. Only Auckland Island, Enderby Island and Campbell Island will be considered for permits. All animal (eg rodents, wasps) and plant (eg seeds, soil) quarantine procedures are strictly enforced with all visits. An impact management fee is charged for the permit. Even more strict rules apply on the Australian scene to Macquarie Island, Heard Island and the nearby McDonald Island.

Dominica - J77FT

The well known German DXer, Frank Turek DL7FT, PO Box 1421 14004 Berlin, Germany had a short three week DXpedition to Dominica, one of the Windward Islands in the Caribbean Sea. It is a small island about 515 km north of the Venezuelan coast. It has an area of 751 square km and the population is nearing 90,000 people.

The island nation became independent in 1978 after being ruled by Great Britain since the 1700s. Roseau is the capital and the largest city. Most Dominicans have African or mixed African, British and French

ancestry. Two thirds of the inhabitants live in rural villages. Dominica is a mountainous tree covered island formed by volcanic eruptions.

After his successful activity last year in Chad as TT8FT, Frank decided to visit Dominica this year. The plan was to spend one solid week DXing and a semi relaxed two weeks with his XYL, Sigrid DL7CN, who arrived on the island one week later.

However, Frank was not prepared for the upset of many of his plans. Here are some extracts from his letter: "I wrote to the PTT in Dominica nominating my choice of callsign as J77FT for my activity. The answer was, 'yes', but the callsign will be issued on arrival only. The fee was \$US25.00. The plane landed on the northern part of the island instead of in the south. After a one and a half hour taxi-drive, which cost \$US60.00, I arrived at my \$US150.00 a day hotel. My heavy luggage, antennas, cables, and summer clothes were missing. My baggage had not arrived with me. I stood there with my ICOM IC-740 in my hand and in heavy winter clothes, because there was -20 degrees Celsius and snow on the ground when I left Berlin.

"Next day I took a taxi looking for a QTH to operate from. It was difficult, because most people did not want 'ham radio' in their vicinity. After two days of taxi-rides I found a very good place on a big rock about 150 metres above sea level, in the north, for a week only. In the meantime my luggage had caught up with me, and there was time to pick up Sigrid from the airport.

"Our problems with the QTH continued. Next day we had to move out of the cottage for four days, then back to a smaller cottage for

three days, then back again to the first cottage for the rest of our stay.

"I started operating on 24 March 1997 at 0055 UTC and EA1DSK was the first contact. I closed the station at 2122 UTC on 13 April after working KA2PFU on 10 metres. I made 10,098 QSOs with 124 countries in the SSB mode on 10, 12, 15, 17, 20, 40 and 80 metres. It was a 'big adventure on a 'big cliff' and in the middle of the jungle which contained more than 150 kinds of birds."

Interesting QSOs and QSL Information

* A35MJ - Mike - 14198 - SSB - 0513 - Aug. QSL via Michael J Downs K5TD, 10538 SE 96th Ave, Portland, OR 97266, USA.

* KG4ML - Larry - 14187 - 0128 - SSB - Aug. QSL via Larry R Minnis WB6VGI, 619 Chapelgate, Odenton, MD 1113, USA.

* FW5IW - Paul - 7005 - CW - 0619 - Aug. QSL via Paavo Miettinen OH5UQ, Jukanki 4B 16, ST-55100, Imatra, Finland.

* ZB2AZ - Ross - 7010 - CW - 0611 - Aug. QSL via Gibraltar Amateur Radio Society, Box 292, Gibraltar.

* P40XM - 7010 - CW - 1101 - Aug. QSL via Guenther Rehbein DL3XM, Aeusserer Lepziger Str 31, D-04435, Schkeuditz, Germany.

* 9M6HIL - Bob - 14025 - CW - 1053 - Aug. QSL via Robert W Schenck N200, POB 345, Tuckerton, NJ 08087, USA.

* CL8VP - Juan - 7015 - CW - 0708 - Aug. QSL via CO8RCG via Cuban QSL Bureau.

* 9M6OO - Bob - 14025 - CW - 1114 - Aug. QSL via Robert W Schenck N200, POB 345, Tuckerton, NJ 08087, USA.

* BX0CQ - Chen - 14190 - SSB - 0756 - Aug. QSL via Sky Chen BV8BC, Box 222, Taichung, Taiwan.

* RX1OX/FJL - Slave - 14191 - SSB - 0756 - Aug. QSL via Nikolai Pfannenstiel DL6YET, Pfarrer Muller Str 10, D-48268, Greven Reckenfeld, Germany.

* 9A50D - Frano - 14004 - CW - 0546 - Aug. QSL via Radio Club Dubrovnik 9A1BHI, B Bogosica 14, PO Box 88, HR 20000, Dubrovnik, Europe.

* J6/PA3EWP - 10106 - CW - 0707 - Aug. QSL via Bob Snieder PA3ERC, Van Leeuwenstraat 137, 2273 VS, Voorburg, The Netherlands.

Future DX Activity

* The Royal Omani Amateur Radio Society club station A47RS, celebrates its 25th anniversary from 1 October to 31 December 1997. All A4 stations will use /SJ after their suffix, eg A41XX/SJ, etc. The special event station A43XXV will be



Frank DL7FT operating as J77FT in Dominica

operating from 17 December to 21 December.

* Mike TL8MR will be in the Central African Republic for one year. QSL via F6FNU.

* Mike XU6WV and Harvey XU2FB were reported to be active on 20 metres between 1130 and 1430 UTC on 14192-14195 and 14226 kHz.

* Ian, operating from Tristan da Cunha as ZD9IL, can be found on most bands. QSL manager is Edwin Z5BBO and QSLs can be sent direct to Edwin Musto, PO Box 211032, Bluff, 4036, South Africa.

* Perry 5W1PC can be found on most weekends operating SSB on 15, 17 and 20 metres. His home call is WH6XY.

* Ray WH6ASW is now active until December from Guam as WH6AW/KH2. QSL via VK4FW.

* AJ KK5ZX will be active every third and fourth day from Johnston Island Club station during his stay, beginning 23 August. Activity will be in the CW mode but there will be some SSB also. QSL via K3SX (ex K3SME).

* Doug W3CF and Dick K3MQH will be active from the US Virgin Islands (from Windwood) with the contest call WP2Z, 22 to 30 October. QSL W3CF/KP2 to QSL Manager KK3S. QSL K3MQH/KP2 to his home call. QSL the contest call WP2Z (for this contest only) to KK3S.

* A group of six Swedish amateurs will be active in the CQWW CW contest on 29 to 30 November from Cuba as T48RCT.

* If you missed the two recent Spratly Island DXpeditions, try to work a British group sponsored by the Chiltern DX Club which is practically the UK DX foundation. They intend to be active in February 1998 with the provisional callsign 9M0C.

* Hermann DJ2BW and his XYL, Margot DL2DK, will be active from Mayotte, from 9 to 22 October as FH/DJ2BW and FH/DL2DK on all bands from 160 to 10 metres, mainly on CW and RTTY.

* There are a number of stations at present working from Uganda. Paul 5X4F, Mario 5X1C, Joe 5X1P, Matts 5X1Z and Peter 5X1T.

* Len VK8DK has a new QTH. He has moved to Katherine in the Northern Territory.

* Don KH8/N5OLS will be in American Samoa until February 1999. QSL to his twin-brother John N5JA. His favourite band is 160 m.

* Jay K0BCN will sign as V31MX from Caye Caulker, Belize from 21 to 29 October.

From Here and There and Everywhere

* If you have worked any of the Omani stations with the Silver Jubilee (SJ)

additional suffix, and you wish to receive an award (five points are needed), A43XXV is worth three points, A470S/SJ two points, and all other Omani stations one point. Send your certified log copy with 10 IRCs or \$US5.00 to the Omani Award Manager, ROARS, PO Box 081 Muscat 113, Sultanate of Oman.

* Neil VK6NE, QSL Manager for the VK9 and VK0 Bureaux, advises that presently no VK0 calls collect their Bureau cards.

* V13PES was a special event station celebrating the 200th anniversary of Sir Paul Edmund de Strzelecki's birthday, the Polish born explorer and scientist who, in 1840, ascended a high mountain in south-west NSW and named it Mount Kosciuszko. QSL via the VK3 QSL bureau or direct to Polonia ARC VK3CRP, PO Box 199, Chadstone Centre, VIC 3148.

* Have you ever heard VM4AA working on the bands? Yes, it is a legitimate amateur station. The callsign was officially allocated to Mac in Runaway Bay, Queensland some years ago by the then DoTC. It was the only callsign allocated out of the VM series, a brave attempt by certain officials, and squashed immediately by the higher-ups. At least that is the explanation which I have heard many times. However, the station was real on 7 MHz at 0652 UTC on 12 August 1997 working a VK3 station in the CW mode.

* Jim VK9NS intends to travel to the UK at the end of September/early October. There is a rumour that he might operate from Bangladesh in those months.

* VK6NE, QSL Manager for VK9, says that only VK9LA and VK9LH are collecting their cards from the VK9 QSL Bureau. According to Neil, the following QSL Bureaux are handling cards for members

only: SARL, South Africa; DARC, Germany; URA, Andorra; REF, France; PZK, Poland; NRRL, Norway; JARL, Japan; ARAM, Monaco; ARRAM, Morocco; REP, Portugal; and EAWC, Egypt.

* The Pakistani Amateur Radio Society (PARS) advised that the call AP2AP being used by JA8WPP and/or JA1EZM is not correct. They say no such licence has been issued by the authorities to anyone and these 'amateurs' have no permission to operate in Pakistan. Hiro JA1EZM continued to be active as AP2AP despite the message put out by PARS and says that he has a good licence. Only time will tell.

* The Japanese station JD1/J68NQJ left Minami Torishima in late September. QSL via JA8CJY.

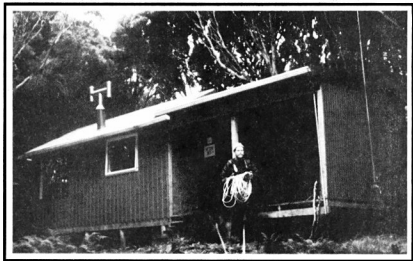
* The special event station J41WCA was active from Greece, celebrating the International Amateur Athletic Federation World Championships in Athens. QSL via SV1BSX.

* The QSL cards for FK8GM and FK5DX are going via WB2RAJ (direct).

* If you worked 7Q7CE in Malawi, he was Eli IN3VZE who ceased operations on 25 August. QSL to home call.

* On the weekend of 23 and 24 August you might have heard a number of GB prefixes where the three letter suffix contained a letter 'L'. These stations were from Scotland, ten of them, taking part in the Northern Lighthouse weekend activity. The amateur radio stations were established at ten lighthouses. Concurrent with this event was the lighthouse/lightship activity weekend which included similar stations at lighthouses/light ships around the world. The participants were mostly European stations.

* Lou PA0LOU, whilst attending the



Ed K8VIR/ZL9DX putting up the antennas at the main Auckland Island hut.

IARU Region 3 conference in Beijing, used the special callsign BT1IARU from 4 to 16 September.

* The latest international beacon to become operational is OA4B in Peru.

* In the August issue of *Amateur Radio* on page 39, I referred to the lack of donations from VK to the VK0IR (Heard Island) effort. I mentioned that only the VK2 Division supported the expedition. Since then, I have been advised by Neil VK6NE that the VK6 Division and the Northern Corridor Radio Group (NCRG) each donated \$500 to the cause. Well done!

* ZS45TWR is a special callsign to celebrate 45 years of Trans World Radio, a Christian Short Wave Radio operating from different areas of the world. The callsign has been activated a number of times already and will be active until the end of 1997. The QSL manager is Leon M Foot ZS4Y, POB 1561, Welkom 9460, Republic of South Africa.

* The Willis Island VK9W team used two callsigns. VK9WY was used by the YL operators, Ann WA1S, Elvira IV3FSG and Noriko 7K3EOP. The VK9WM callsign was used by the following male operators: Bob VK4MR, Eric FK8GM, Vlad OM3CUU/VK2AED, Darryl AF7O, Bill K6KM, Doug VE5RA, and Bill VK4FW. The VK4YN callsign was reserved for the activity on Holmes Reef. QSL for all operations go to VK4FW.

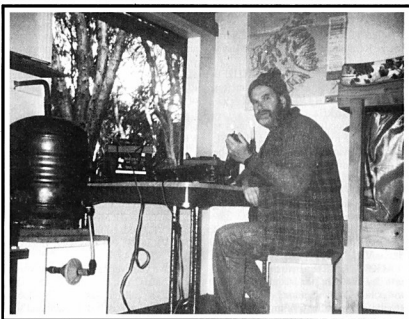
* The well known QSL Manager, Gerald (Jerry) Branson AA6BB/7 is now a silent key. For the next three months all QSL requests sent to Jerry's address will be answered by a group of volunteers.

* Allan G0IAS advises that he is not the QSL Manager for Jim SZ4FM. QSLs should be sent direct to Jim Stewart, PO Box 63363, Mathaiga, Nairobi, Kenya. Please do not put callsigns of any kind on the envelope, otherwise cards get 'lost'.

* In my column in *Amateur Radio* for March 1997 there was a note about the possible eruption of the volcano Big Ben on Heard Island. The *Sydney Morning Herald* now reports that the eruption was on the nearby McDonald Islands, and was detected in March this year, although the main event must have occurred in late December or early January. Scientists apparently are now jumping for joy because the volcano on McDonald is the first one to be discovered in the southern hemisphere for at least a century. Australia now has two active volcanoes, both in the Heard Island group.

QSLs Received

BS7H (2 m - W4FRU); CU7BA (3 w - op); 5A1A (12 m - UT3UY); VK4ALF/9 (3 w - AA6BB); - KH8/N50LS (7 m - op - Don



Ed K8VIR/ZL9DX operating from the main Auckland Island hut.

Barclay, PO Box 8, Page Pago, AS 90799, USA); EM1KA (6 m - JA2JPA).

Thank You

As always, I am grateful for the assistance given to me by many of you. Special thanks to: VK2XH, VK2KPU, VK2TJF, VK5WO,

VK6NE, VK7BC, VK9NS, DL7FT, G0IAS, K8VIR, ROARS, and the publications *Sydney Morning Herald*, *QRZ DX*, *The DX News Sheet* and the *425 DX News*.

*PO Box 93, Dural NSW 2158

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International Amateur Radio Union Monitoring Service (IARUMS) - Intruder Watch

Gordon Loveday VK4KAL*

80 m DX Window

Recently, many observations have been reported to me of intruders in the 80 m DX window, that small portion of the band used to work DX via the "Grey Line". The frequencies of so-called interference were roughly stated as 3799 to 3800 kHz. The ACA have logged a signal on 3795.125 kHz with the same technical characteristics as the reported 3799 kHz signal, ie R3BCW. Cross reference points from Darwin and Brisbane resulted in a location in North Korea.

North Korea is in our Region 3 and is entitled to use Fixed and Mobile Services between 3500-3900 kHz.

I am not familiar with mode R3BCW. It must be an updated "old mode". It does suggest that if anyone uses the DX Window they may have company!

7100 kHz Interference

Representations to Beijing recently about a 7100 kHz transmission have brought a reply to the effect that adjustments will be made to remove the interference. So keep checking 7100 kHz.

Indonesian Broadcaster Interference

We are looking for a firm identification of the Indonesian broadcaster on 7098 kHz. Can anyone improve on "RRI, Republic of Indonesia"? Maybe a town or city would pinpoint it!

*Federal Intruder Watch Co-Ordinator, Freepost No 4 Rubysvale QLD 4702 or VK4KAL@VK4UN-1

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Novice Notes

Peter Parker VK1PK*

Antennas for the Space-Restricted

Introduction

The trend towards smaller lot sizes and inner-city living has made it harder for many amateurs to erect antennas, particularly for the HF bands. This, along with the fear of causing interference, has driven many to confine their operating to the VHF and UHF bands and/or when away from home. This article shows that it is possible to operate successfully from a confined space. I will concentrate on antennas for two, ten and eighty metres, though it should be possible to apply the ideas given to other bands.

Antennas for Two Metres

The helical antennas supplied with handheld transceivers often perform poorly around the house. A better antenna is usually needed. This can range from a simple ground plane or J-pole to a beam and rotator. A difficulty often faced is finding a way of routing the feedline inside without compromising security, particularly if your home is rented.

Indoor antennas can be quite effective if you are near a repeater. Provided it can be placed near a window facing the direction of interest, its performance should be acceptable. Indoor antennas can take many forms. Some experimenters have successfully used self-adhesive copper tape to build quad loops. In this case, the tape is simply stuck onto a window pane or a piece of cardboard. Little space is required; a loop for two metres is about 50 cm square, while one for 70 cm is less than 18 cm square. Depending on how the loop is fed, it may radiate either horizontal or vertical polarisation signals. More information appears in *Reference 1*.

Another option is some sort of vertical antenna. These go under various names, such as "J-poles", "Slim Jim" and the like. Normally made out of metal tubing for outdoor use, the keen experimenter should be able to use materials such as PVC tubing, coaxial cable and 300 ohm TV ribbon to make an indoor version. Performance a little over that provided by a half wave dipole should be obtainable.

Although a half-wave dipole offers less gain than the more elaborate antennas mentioned above, they are easier to build. Because vertical polarisation is most common, a simple dipole can be hung

vertically behind a curtain or in a similar inconspicuous position. Or, when outside, hang it from a tree branch for better coverage on VHF. Simple vertical antennas are particularly useful when omni-directional coverage of a local area is desired, for example during club nets or local contests. Construction details of a dipole made from coaxial cable appear elsewhere in this article.

Antennas for Ten Metres

The existence of the 27 MHz CB band has been a real boon for the antenna experimenter active on 28 MHz. Many CB antennas can be modified to ten metres with very little work being required. For flat dwellers, a Yagi or quad is normally out of the question, though the possibility of installing a VK2ABQ miniature beam antenna for a few decibels of gain should not be discounted (*Reference 2*).

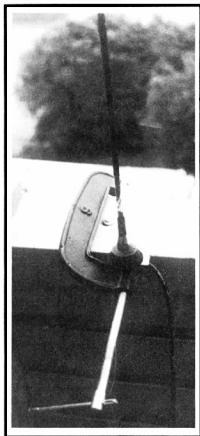


Fig 1 - A 27 MHz mobile whip set up for 28 MHz amateur operation.

Those with sizeable balconies or a backyard could try a horizontal dipole. The space required is about five metres. If fed with open wire line, the dipole should also work on 21 MHz with the addition of an antenna coupling unit.

Another option is a modified fibreglass CB whip. This is effective for both local and overseas contacts and occupies very little space. Longer whips give the best performance; a 1.8 metre whip is suggested. Good height and a clear outlook are desirable (Figure 1). A ground system is important. This can either be a metal roof, gutter, railing or one or two 2.5 metre long radials. Once installed, the whip is trimmed (using a hacksaw) to make it resonant on 28 MHz. To avoid over-cutting, saw off small pieces at a time (no more than 1 cm) and check the standing wave ratio (SWR) at the antenna after each cut. If the antenna is too long, you will find that its SWR is lowest at 28.1 MHz and gradually rises towards 28.6 MHz. Continue trimming the antenna until the SWR is lowest around 28.4 MHz. It will rise either side of this frequency but should be acceptably low over the whole Novice section of 10 metres. When you've finished, you will probably have sawn 8-10 centimetres off the antenna.

Antennas for Eighty Metres

This is a challenging band for the amateur with little space. Though a compact antenna is unlikely to yield regular DX contacts, it should be possible in almost every case to enjoy fairly regular QSOs up to about 1000 km when band conditions are quiet. There is always a trade-off between bandwidth and efficiency with small antennas. Always aim for efficiency; it is better to be heard on one frequency than to be heard on none.

The use of 300 to 600 ohm open wire feedline (instead of 50 ohm coaxial cable) can allow a dipole cut for one band to operate on several higher frequency bands with the help of an antenna coupling unit. Of greater interest to us, however, is the behaviour of such dipoles below their normal resonant frequency. If your operating frequency is not much less than an antenna's design frequency (eg transmitting on 3.6 MHz using a tuned feeder dipole resonant at 5 MHz), such an antenna can be quite effective. Tuned feeder dipoles much shorter than this do work but are inefficient (*Reference 3*). I would suggest a dipole with a total length of at least 25 metres as a sensible minimum for efficient operation on 80 metres.

Some operators use end fed wires. An effective counterpoise is important, particularly if the wire is a quarter wavelength (20 metres) long or less. Some people use the gutters on their house for this.

However, there is a risk that poor electrical contact between lengths of gutting could act as crude rectifiers and cause interference-producing harmonics to be radiated. Half wavelength-long end fed wires exhibit high feed point impedances and are less dependent on an effective earth for correct operation.

Vertical antennas are another possibility. Again, an extensive ground system is needed for good efficiency. This greatly reduces their attractiveness to amateurs living in flats where access to any ground, let alone a good one, is difficult. People with backyards too small for a dipole may have sufficient space for a trap vertical. Several 80 metre operators known to the author have had good results with the commercially-made verticals manufactured by Andy Coman.

A rotatable dipole can be formed from two mobile whips. Such antennas have directivity and do not need extensive grounding systems. A description of such an antenna appeared in *Amateur Radio* last year (Reference 4). Bandwidth will be narrow, but experimentation with remotely controlled relay switching schemes, to allow a choice of

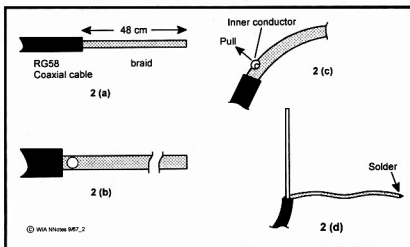


Fig 2 - Construction of the hanging dipole for two metres.

operating frequencies, may prove fruitful.

A magnetic loop is perhaps the smallest practical antenna for 80 metres and the only option for some. It consists of a circle or square of metal tubing brought to resonance on the operating frequency by a variable

capacitor. A single loop can cover several bands. The efficiency is lower than for larger antennas, but no ground system is needed and the antenna does not have to be very high off the ground. Loop sizes as small as 1.5 metres square are practical on eighty metres,

Novice Plus

Helping you get more from amateur radio

Build a Hanging Dipole for Two Metres

Described here is a simple omni-directional, vertically-polarised dipole for two metres. Made from coaxial cable, it can be rolled up and stored in a small container. It may be used as is indoors, or waterproofed for use outside. No extravagant gain claims are made; this dipole has no more gain than any other. However, it should be significantly more effective than the antenna that came with your handheld. The cost of building the project is around five to ten dollars. Allow about 20 minutes to construct and erect the antenna.

A single length of 50 ohm coaxial cable forms both the antenna element and the feedline. The antenna is made by removing a quarter wavelength of outer jacket and bending the braid back along the cable towards the transceiver to form a vertical dipole (Figs 2 and 3). This means no metal work or wiring is required (apart from attaching the BNC or PL259 plug).

Parts Required

The following is required to complete the project:-

- 3-4 m RG58 coaxial cable (*not critical - use longer length if height is needed or the operating position is distant from the antenna*)
- PL259 or BNC plug (*to suit transceiver*)
- small metal lug, washer or nut
- tape measure, scissors, small screwdriver, long-nosed pliers, multimeter, fishing line, soldering iron, etc.

Construction

1. Solder the PL259 or BNC plug to one end of the RG58 cable.
2. From the other end of the cable remove 48 cm of the black plastic outer covering to expose the braid (Fig 2 a).
3. With a small screwdriver (Phillips head is best) gently part the braid to make a small hole near where it ceases to be covered by the plastic jacket. Aim to make it about 5 mm in diameter (Fig 2 b).
4. Use either pliers or a screwdriver to pull the inner conductor out from inside the braid through the hole in the braid (Fig 2 c).
5. Fold the braid back along the cable towards the plug. Solder the end of the braid to prevent fraying (Fig 2 d).
6. Remove about 5 mm insulation from the inner conductor.
7. Solder the end of the inner conductor to a small metal lug or nut.
8. Thread fishing line through the lug or nut and hang the antenna in its desired position (Fig 3).
9. The antenna is now operational. You may wish to check the SWR and make it longer or shorter if the SWR is above about 1.5:1 at 147 MHz.

Erection and use

The antenna should be hung vertically for best performance. Keep it away from metal objects and have it as high as possible. Where signals are weak, hang the antenna near a window facing the repeater. If you intend to use the antenna outside, apply sealing compound to stop moisture entering the cable. Not doing this will mean poorer performance over time as cable losses increase.

although larger loops will be more efficient.

An effective magnetic loop antenna will have a thick, low-resistance element and good connections. The bandwidth will be narrow at 3.5 MHz; 10 kHz is typical. A narrow bandwidth (or "high Q") indicates that the antenna is efficient and resistive losses are low. A design that has worked well for the author will feature in December's *Novice Notes*.

Conclusion

This article has provided a few ideas for those who may have thought that they had too little space to erect an antenna. Provided that care is exercised in the construction and adjustment of the antennas described here, all should yield acceptable results.

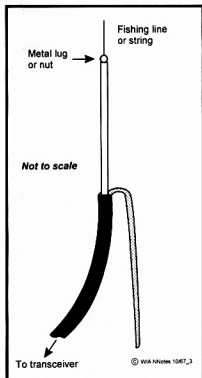


Fig 3 - Hanging dipole for two metres.

References

1. Hawker, P. *Amateur Radio Techniques*, 7th Edition, RSGB, p 299.
2. Moxon L. *HF Antennas For All Locations*, RSGB, p 168.
3. Moxon L. *HF Antennas For All Locations*, RSGB, p 222.
4. Cook, R and Fisher, R. *Random Radiators*, *Amateur Radio*, Aug 1996 p 19.

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Over to You - Members' Opinions

All letters from members will be considered for publication, but should be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

Promoting Amateur Radio

In his letter in September's *Amateur Radio* magazine, Kevin VK4AKI makes several valid points regarding the promotion of amateur radio. The letter's penultimate paragraph mentioned that there was little information on low cost amateur radio equipment (either homebrew or second hand) in communications magazines.

I hope that Kevin doesn't include *Amateur Radio* in his comments. In the last few years many construction articles on simple CW, SSB and FM equipment have appeared in *Amateur Radio*. During that period, the *Novice Notes* column also covered topics of interest to the budget-conscious amateur, including home-brewing and purchasing second-hand VHF/UHF equipment. Even non-members can freely access these latter articles via the Internet at <http://www.pcug.org.au/~parkerp/online.htm>.

Those interested in CW, QRP and home-brewing will probably benefit from membership of the CW Operators' QRP Club at <http://www.pcug.org.au/~parkerp/qrp.htm>. The Club's magazine, *Lo-Key*, frequently includes articles on simple homebrew transmitters and receivers. The CW Operators' QRP Club also has an innovative policy where members who promote the club by giving a potential member their *Lo-Key* have it replaced free of charge.

The above-mentioned magazines, being member-only publications, are seen by few potential amateurs. Having construction projects and articles on used equipment appear in more general magazines is therefore important. Fortunately, magazines such as *Radio and Communications* and *Silicon Chip* (see September 1996 issue for example) have featured some simple receiver projects in the last few years.

More amateurs writing articles for both *Amateur Radio* and other magazines would obviously assist these efforts further. The use of the Internet to spread information is also a promising development. Not only can we send text, photographs and schematic diagrams; sound transmission is now possible, so that the constructor could (for example) hear audio clips from a homebrew receiver before deciding whether it sounds good enough to duplicate it.

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Donation of Fluke Prize

I was happily to surprised to hear from e-mail correspondents that I had won a Fluke 12B after joining the WIA, Queensland Division.

While I've not yet seen the WIA News item on page 5 of the September *Amateur Radio* issue (*Amateur Radio* readers who subscribe to *QST* or *RadCom* will be familiar with the speed of trans-Pacific surface mail), it has been quoted as saying I'm an executive with a radio station. Tch, people will think I don't work for a living! In fact, I'm transmitter tech for TV stations WTHR and WALV-LP in Indianapolis, Indiana; officially, "Chief Operator/Senior Technician - RF", but it boils down to being the person who fixes the transmitter and other RF gadgets, and makes sure the Master Control operators keep transmitter logs up to date. Technical work of the dirty-hands sort, with only a modicum of paper shuffling.

The question is, what to do with the meter. The Fluke 12B is a very fine DVM, heavy for its size; shipping costs to the States may run close to the price of the meter! This seems an unfair burden, and probably was not anticipated in budgeting for the give-away. With that in mind, and as I already have several fine meters (including a Fluke) on the workbench, I would like to suggest the WIA locate a young VK ham of modest means who needs a DVM, and give it to him or her instead.

Let I be accused of altruism, please bear in mind that encouraging an Australian ham to get deeper into the technology of the hobby does have an ulterior motive: one reason for my joining the WIA was the construction articles in *Amateur Radio*, and one more promising ham with decent test gear increases the odds of seeing more of them! Besides, I was once a young amateur of decidedly small budget and the OTs helped me along, so it's a debt to be repaid (and another debt, too; Ross Hull is not forgotten!).

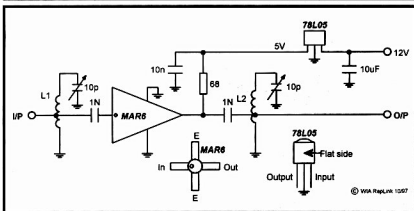
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ar

**Amateur radio -
helping our
community**

Repeater Link

Will McGhie VK6UU*



Projects

Even with limited time, I have a couple of projects under construction. One is a variable frequency two metre and 70 centimetre signal generator. The signal generator runs at one third of 146 MHz, and tunes the entire 2 m and 70 cm bands. However, the generator is not complete in terms of the circuit diagram ready for publication, and a few other loose ends.

This signal generator, after warm up, is very stable and provides signal levels on 2 m from about 50 microvolts, down into the noise. On 70 centimetres the signal level is from about 10 microvolts.

If you service a voice repeater, a signal generator is essential, but ready-made units are expensive. Some of the cheaper units advertised by a number of suppliers are of little use on VHF and above, mainly due to signal leakage. Apart from reasonable frequency stability, the next most important quality is signal leakage. It is of utmost importance that the signal from the generator only comes out of the output connector. Leakage from the generator via other means, such as the power supply lead or radiation from its container, mask the output level and make proper measurements difficult at best.

I hope to have this project ready soon, but if you would like some advance information and a circuit let me know. Getting a project from the working situation to the ready-for-publication stage, can take just as long as the time spent on the project.

FM828 Sensitivity

The Philips FM828 is used in many voice repeaters. The units are cheap and reliable. However, the receiver has only moderate

sensitivity. Your average 828 at the 20 dB quieting point is around 0.3 to 0.4 of a microvolt. Today's receivers are at least 6 dB better than this, with some as good as 0.15 of a microvolt at the 20 dB quieting point.

A word on this 20 dB quieting point. FM receivers tend to be specified in SINAD these days, and the figure is so many microvolts for 12 dB SINAD. All SINAD means is the measured noise and distortion, the old N&D measurement. The original 20 dB quieting measurement did not measure the distortion on a test tone. It was a measurement of noise only on a non modulated carrier. As it turns out, the two measurements are about the same. The distortion measurement lowers the dB figure, so 20 dB quieting is about the same as 12 dB SINAD.

By Ear

The 20 dB quieting point is easy to pick by ear. Lower the signal source down from a strong signal until the hiss (noise) starts to change its characteristics with the addition of crackle. Just before the start of the crackle type of noise is about the 20 dB quieting point. The noise is 20 dB down on an open mute with no RF signal. The level of microvolts being injected is the sensitivity. Having an accurately calibrated signal source is the difficult bit. Most modern commercial amateur radios on 2 m and 70 cm are around the 0.15 to 0.3 microvolt range. Compare this signal level to an FM828 to give you some idea.

MAR6

I have tried many ways to improve the sensitivity of the FM828, from changing the front end RF transistor to one with a lower noise figure, to modifying the circuit, all with

little effect. It could be the loss in the two coupled front-end tuned circuits before the RF transistor that limits the sensitivity. These tuned circuits may be optimised for sharp selectivity rather than minimum loss.

I used a monolithic amplifier, the MAR6, in place of the existing RF transistor, and still no improvement. However, any reasonable RF pre-amp ahead of the FM828 receiver does improve the sensitivity considerably. The accompanying circuit uses the MAR6 as a bandpass RF pre-amp. This circuit is simple, and you would have seen the design many times as a broad band pre-amp without the two tuned circuits L1 and L2. These tuned circuits can be omitted and the input and output connected straight to the MAR6 via the DC blocking capacitors. However, the MAR6 has a very wide frequency response up to about 2 GHz. No need to amplify all these signals and then feed them into your FM828.

The 68 ohm resistor is important in that it sets the bias current for the MAR6. Some designs add a small RFC in series with the 68 ohm resistor.

L1 and L2 are six turns for 2 m, and three turns for 70 cm, 5 mm diameter. For 2 m, tap at about one turn, and 70 cm at half a turn. If the 10 pF trimmer capacitors don't resonate when fully meshed, add a few pF.

The 20 dB of gain and lower noise figure (2 dB) of the MAR6 will improve the FM828. It will improve your voice repeater as well, but this increased gain can cause more problems than it solves. Repeaters are struggling with overload problems as is, and the addition of more front-end gain has to be approached with caution.

Construction is on PCB material with as much ground plane as possible and good all-round RF layout. The MAR6 can be obtained from Oatley Electronics.

29 MHz Gateway Thoughts

There is increased interest in 29 MHz gateways now that they can be licensed. It is important that some common specifications exist in regard to the CTCSS requirements.

The 29 MHz receiver on the gateway can be open access. This means that the receiver is squelch operated. Any amateur licensed for 29 MHz can then access the gateway, simply by transmitting on the 29 MHz gateway frequency. This requires no modifications to the amateur's 29 MHz transmitter. However, if the gateway requires a CTCSS tone to access the gateway's receiver, then a CTCSS tone would have to be added to the amateur's 29 MHz transmission. Most, if not all, HF multi-band transceivers don't have CTCSS encoders built in.

This presents us with a problem. The 29 MHz gateway may well be on air but few, if

any, amateurs will be able to access it until they fit a CTCSS encoder. Not all that difficult, but difficult enough to slow the progress of use of the gateway.

So why the requirement for the CTCSS in order to access the 29 MHz gateway? There are two reasons. Firstly, 29 MHz is a noisy band with all sorts of signals. These signals will key up the gateway system and be re-broadcast out on the VHF and/or UHF repeater system the gateway is connected to. This will be very annoying to those listening on the VHF/UHF repeaters. CTCSS on the 29 MHz gateway receiver will stop this.

The second reason is to do with licensing. At this time we are not permitted to link between 29 MHz gateways. The reason for this is due to the linking regulations not permitting linking below 50 MHz. I would like to see this changed but it could take years. So, for the moment, we have to make do.

There are two ways around the problem of 29 MHz gateways linking to each other when propagation permits, and that is to use different gateway frequencies, or use CTCSS. There are three allocated band plan frequencies for 29 MHz, and they are 29.120, 29.140 and 29.160 MHz. The recommendation for the moment is for all gateways to use 29.120 MHz.

Working

This is how it could work. All 29 MHz gateways on 29.120 MHz and requiring a 123 Hz CTCSS tone to access the gateway receiver. As the gateway 29 MHz transmitters are not encoded with 123 Hz, they can't link to one another.

From a users' point of view on 29 MHz, only one CTCSS Tx encoded tone is required, and only one frequency has to be monitored. When propagation allows, any gateway in Australia could be heard by being tuned to 29.120 MHz.

During the testing phase of the 29 MHz gateway, and to generate interest, the 29 MHz gateway receiver could run without the CTCSS requirement, but only for that initial time period. Once the interest was there, and help in installing a 123 Hz CTCSS encoder in the users' transmitters achieved, then the gateway would go to CTCSS.

VK6 29 MHz

The 29 MHz gateway system for VK6 is ready for operation. However, there are several other projects also requiring time. Hopefully, the gateway will be on air before 1998.

**21 Waterloo Crescent, Leamurdie 6076*

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E-mail: will@vale.farroc.com.au

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Spotlight on SWLing

*Robin L. Harwood VK7RH**

The world was shocked and saddened to hear the very tragic news that Diana, Princess of Wales, was killed in a car crash in Paris on 31 August. The news reverberated around the globe in seconds with many stations hurriedly interrupting programs to announce the grim news. The BBC World Service ran continuously for 13 hours with news of Diana's death. It was a Sunday morning and everybody was completely unprepared for this event.

It was interesting observing how television completely took over coverage. Many of the reports were in fact taken off the television audio, whether CNN or the various British networks. When a major news event has previously happened, I usually tuned in to the BBC World Service to get the latest unbiased reports on the situation yet I found that on this occasion, television was very graphic and immediate in conveying the situation. Radio reports via the Beeb or other broadcasters did not have the same forceful impact that was conveyed in video form.

Throughout the week, Diana's death seemed to pre-empt all else in the print and electronic media, culminating in the final public farewell on the Saturday morning. This was broadcast over some stations live yet the best coverage on short-wave was provided by the BBC World Service, as relayed from the domestic networks, yet it did not have the same impact as television. We have to remember that there are many millions of people who do not have access to television. Short-wave radios are cheaper than satellite television receivers.

This fact has not been lost on many of the major international broadcasters who have rapidly concluded that satellite television may be out of the running in some target areas. There are regions where there are no receivers because of economic or political reasons. Some governments have actually banned private use of satellite television receivers.

There has been quite a deal of marketing hype from technical developers, particularly in Europe and to a lesser degree in the USA over various forms of digital audio broadcasting. No clear international technical standard has emerged as there are several competing systems vying for acceptance.

Major manufacturers naturally are very wary of making commitments until some universal agreement can be reached. One system known as Eureka 147 has been

developed by some European broadcasters but it is still a long way off becoming the standard for digital audio broadcasting. No receivers have yet been mass-produced because of these competing systems.

You will hear announcements from some broadcasters, such as Deutsche Welle and Radio Netherlands, that they are readily available over satellite transponders. However, the number of people accessing these are still in the hundreds. Equipment for decoding these is still expensive and these transponders are mainly for rebroadcast by domestic networks and cable operators. Programming usually is on an audio subcarrier of an existing television programme. It does appear that short-wave will continue to be around for at least a generation. There are regions and areas, which are not covered by satellite. Also, an affordable reliable receiving technology has yet to be developed, manufactured and marketed in sufficient quantities to be economically viable.

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There was a recent move to have Australia's short-wave radio clubs combine to form an Australian DX Radio Federation. All clubs have found that their membership base has rapidly declined and costs to produce short-wave bulletins have increased. Bob Padula convened a meeting in early August to ascertain if there were ways and means where the clubs could co-operate and pool their dwindling resources. It looked promising at the inaugural meeting but since then only one club has indicated its willingness to continue. Bob Padula indicates that he is not going on with an

Australian DX Radio Federation because of this apathy. Fortunately, the Electronic DX Press is unaffected and will be continuing.

Yet another broadcaster is now being relayed by the BBC World Service relay at Skelton. The Sri Lankan Broadcasting Corporation in Colombo is now on from 1900 to 2100 UTC in Tamil, Sinhala and English on 5975 kHz. It has been heard here in Australia. Colombo is heard daily broadcasting to Australia on 11835 kHz from 1030 till 1130 UTC, also in English from a site within Sri Lanka (Ceylon).

Don't forget that the end of this month sees

major changes to broadcasting when Europe and North America revert to standard time. 26 October is the date scheduled for the changeover, which also is the day on which NSW, Victoria, the ACT and SA advance their clocks, Tasmania making their change on 5 October and NZ a week later.

Well, that is all for this month. Please note that I am no longer on packet and therefore will not be able to answer any messages sent via that means.

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Pounding Brass

Stephen P Smith VK2SPS*

In a recent issue of *Practical Wireless* I came across an advertisement on "The QRP Component Company", an overseas company selling a vast range of telegraph keys and run by Chris Pees G3TUX. Some of the keys offered by Chris include Bencher, Jones, Kent, DK1WE, Schurr and a beautifully made Swedish pump key. Further enquires can be made to Chris G3TUX at The QRP Component Company, PO Box 88, Haslemere, Surrey, GU272RF, England. Include two IRCs for return postage to receive a list of products he has to offer.

A special thanks to Drew VK5BWF for the article in relation to the "Universal Telegraph Code" which was later modified by Sir Charles Todd and adopted by the states of Victoria and New South Wales and called the "Modified Code" If any reader has further information in relation to this code, it would be greatly appreciated.

Brian VK2GCE has a few British Nato Keys left, model 5805-99591-1939 made by Price Edwards Ltd. Photos and information on these keys were featured in the December 1996 issue of *Amateur Radio* magazine on page 43. If you are interested, further enquires can be made to Brian on 02 9545 2650.

John Alcorn VK2JWA is now selling his splendid publication "Radio Telegraph and Radio Telephone Codes, Passwords and Abbreviations". The cost is \$12.00 (\$14.00 post paid in Australia). His web page is <http://norr.com.au/community/sarc/phonetic.htm> and his home address is 33 Spring St, Lismore NSW 2480. This publication was mentioned in an earlier issue of *Pounding Brass*.

On the subject of books, one that I highly recommend to all radio amateurs who are interested in telegraphy is "American

Telegraphy and Encyclopedia of the Telegraphy" by William Mayer Jr. This book must be the bible of telegraphy and covers everything up to 1912. It is a hard cover reprint of the fifth edition with some 600 plus pages and 500 plus illustrations and was only recently reprinted. Some of the chapters covered include Primary Batteries, Dynamo machines used in Telegraphy, Galvanometers, Quadruplex and Duplex Repeaters, Time Telegraph Services, Burglar Alarm Telegraphy, and Fire Alarm Telegraphy.

The book contains so much information it is not possible for me to mention all of the contents in detail. The book sells for \$US34.95 plus \$US15.00 surface insured mail. The book can be purchased from

Lindsay Publications Inc, PO Box 538, Bradley, IL, USA 60915-0538 (Tel 815-935 5353); and Artifax Book, PO Box 88 Maynard, MA, 01754 USA.

Write to either of these companies for further information and a current catalogue of their out-of-print technical books. I can't supply a telephone number for the latter company, however the article appeared in the "Vail Correspondent" No 20, July 97. It's worth the money and wait for this magnificently bound book, one that will stand out in any amateur collection.

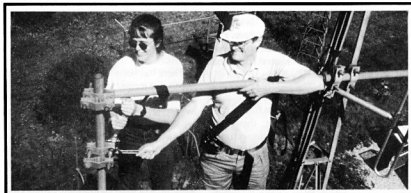
Next month, build a cassette recorder controller for use with Morse tapes (an easy circuit for beginners).

*PO Box 361, Moma Vale NSW 2103

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Amateurs in Action

Another photo from the VK1 Division antenna erecting exercise (see caption to the cover photo - page 1).



Laeli VK2LAL and Paul VK1TEE working high off the ground on the Mt Ginini antenna array. Note the safety harnesses!

VHF/UHF - An Expanding World

Eric Jamieson VK5LP*

All times are UTC.

Six metres of 50 years ago (Part 3)

This section completes the article from the UK Six Metre Group Newsletter of October 1991, providing further insight into the establishment of six metres in an article *The History of Six* compiled by Neil Carr G0JHC from Harry School's (KA3B) *Six Metre Digest* 1987, also from an article by Brian Brewer G3COJ for the UK Six Metre Group. Excerpts are worthy of inclusion on this occasion, permission having been established.

1947: A Year of Firsts

"With a combination of flourishing activity and the peak of Cycle 18, the year 1947 proved to be a winner in almost every respect.

"South of the border, XE1KE put Mexico on the air by operating on 50.024 MHz with 100 watts to an 829B feeding a 4 element beam at 90 feet. CE3CV in Chile was attempting to get permission for 6 metre operation. In Europe PAOUN of Eindhoven, Holland was active by special permission with 100 watts to a 4 element beam. Later PAOUN and PAOWJ followed suit.

"The big news was that Gs were given permission for 50 - 54 MHz operation for experimentation lasting until January 1, 1948. This special authorisation was later extended to April 30, 1948 and was available to anyone paying the 10 Shillings tax. Maximum power was 25 watts input.

"By late 1947 there were large amounts of activity taking place in VK-ZL and in South America, with nearly 50 active stations in Argentina alone.

"The first major event of 1947 took place on January 25th when Major W.O. Brewer (J9AAK) at Okinawa was worked by Captain Bob Mitchell (KH6DD) at Ewa, Oahu for a new distance record of 4600 miles. The QSO began at 3.13 PM Hawaiian time and lasted 27 minutes with signals as high as S-7.

"The second QSO took place at 4.33 PM with signals over S-9. At 4.48 PM, W7ACS/KH6 at Pearl Harbour took over, until 5.07 PM when signals faded out.

"Although the South Africans were not allowed 6 metre operation, ZS1T, ZS1P, ZS1AX and ZS1DJ were actively listening on 50 MHz for hopes of possible cross-band contacts. On March 26, 1947 the automatic transmissions of PAOUN were heard S9+ by ZS1P and others. On March 29th, ZS1P

worked PAOUN cross-band with S9 signals both ways during an hour long QSO.

"Seven months after the famed KH6DD - J9AAK QSO, a new distance record was set once again. This time, W7ACS/KH6 worked VK5KL in Perth[sic] Australia on August 25th at a distance of 5350 miles, breaking the old mark by 750 miles. [Actually, VK5KL was in Darwin, Northern Territory when he made the record contact. ... VK5LP]

"DX in the form of F2 propagation returned with a vengeance during October 1947, placing the 6 metre band in a frenzy.

"The South Africans finally obtained operating privileges[sic] and put them to immediate use. On October 11th, ZS1T worked PAOUN for the first European 2-way on 50 MHz with South Africa. This contact broke the short-lived world record set two months before. The record now stood at 6000 miles. Six days later, CE1AH Chile and J9AAK Okinawa smashed the record for the third time in less than a year, with their QSO covering 10500 miles.

"The latter part of October saw many days with cross-band activity between England and the eastern portions of North America. On October 29th, PAOUN worked 2-way 50 MHz into the US for the first time. W2AMJ made the contact first at 8.14 AM EST followed shortly after by W3OR. W3OR's luck continued. November 1st saw a major opening between the East Coast and the Western areas of North America. In addition to many W6s and W7s, W3OR landed Alaska, in the form of KL7DY.

"On November 3rd an opening across the Atlantic took place, lasting for over 2 hours. The band opened at 8.10 AM EST. G5BM, G5ZT and G4NY worked a record number of US 6 metre stations via cross-band.

The English receive permission for 50 MHz

"Special temporary licences for 6 metre work were issued by English authorities in early November of 1947. As mentioned earlier, licences for 'experimental' purposes such as these, were to expire on January 1st, 1948. They were later extended to April 30, 1948. The licences were subject to certain time and frequency limitations with 25 watts of maximum input. Stations located within London were not to operate after 1500 UTC. Hilton O'Heffernan (G5BY) received his temporary licence on November 5th, 1947.

"The January 1948 CQ Magazine reported the following: 'Having no rig on 50 MHz, Hilton grabbed a few eats and worked

until 4.30 AM to get a rig on. He then went to bed for 2 hours sleep and got up to have his first 50 MHz 2-way QSO with ZS1P, a distance of 6000 miles. Forty-five minutes later he had a QSO with WIHDQ and in another 30 minutes with a local. Within 1 hour and 15 minutes, 3 contacts and 3 continents had been worked!'

"Between November 6th and December 1st, G5BY completed 175 QSOs with 93 different stations in North America, South America, Egypt and Suez.

"Actually, Dennis Heightman (G6DH) was the first 'G' to work the US on 50 MHz. Dennis contacted WIHDQ on November 5th 1947 at 1302 GMT. A QSO with W2AMJ took place at 1345 GMT. Later at 1620 GMT, G5BD worked VE1QZ for the first G - VE QSO. The month of November 1947 continued to be an excellent one for British operators. In addition to the numerous trans-Atlantic openings which took place, rare DX in the form of MD5KW (Suez) and SU1HF (Egypt) graced a few logs. G6DH was the first 'G' to work MD5KW which was being operated by Major Ken Ellis (now G5KW). This QSO took place on November 10th with MD5KW running 35 watts to an HK54, and a S27 receiver, and a 4 element beam at 35 feet.

Trans-equatorial Propagation is "Discovered"

"By the fall of 1948, Mexico had as many as 15 active operators on 6 metres. Most of them ran high power levels to Yagi antennas. In Argentina, as many as 50 stations, some running as much as 300 watts, were looking towards the north for contacts. As fate would have it, the operators of both countries soon realised that a path between them existed quite often on 6 metres. On many occasions openings were intense with very solid signals. Although the mystery of 'why' was unanswered at the time, amateurs took full advantage of this propagation medium.

"On January 24th, 25th and 26th, 1949, a very severe ionospheric storm took place. The storm began at 1400 EST on the 24th and continued to 0700 EST on the 26th.

"The 6 metre band was full of Sporadic-E and Aurora. On the 25th, HC2OT in Ecuador worked W5NXM at 1800 EST followed by other W5s. HC2OT's signal was heard as far north as W0. This was the first prime evidence of TE propagation during an ionospheric disturbance. Less than a month later during another aurora session, Bill Colburn W1ELP in Massachusetts worked HC2OT via TE for the first W1 contact into South America."

Part 4 of this series next month, space permitting.

Ron VK3AFW said a message from Wal VK6KZ mentions that: "As at 14/7 the

Albany beacon on 144.465 MHz; remains off the air. It is usually switched off during 'winter', whatever that means!"

Aircraft Enhancement

Ron also reported that on 3/8, on the Sunday morning aircraft enhancement net of 144.200 SSB, the following were heard: Max VK3TMP, portable at Portarlinton worked VK1BG, VK2ZRE, VK3DEM; Ian VK1BG celebrated his return after months away by working a bag of stations, Charlie VK3KLO, Gavin VK3HY, Steve VK3ZXR, (fairly new on 2 SSB, operating from Crib Point and should stir things up a bit for QSOs along the southern seaboard). Rod VK2TWR, Gordon VK2ZAB, Adrian VK2FZ4, (meteor bursts), Barry VK3TBM/P north of Shepparton, John VK3AJN.

Other call signs heard being worked were: Joe VK7JG, VK2BBS, VK2RO and VK3KLN.

On 2/8, Andrew VK7XR reported working Rod VK2TWR and Rob VK3DEM on 2 m and 70 cm SSB. Andrew has made some progress on his 10GHz equipment with a new PLO now on frequency and stable.

Barry VK3TBM reports having a great time operating mobile. From 20/6 to 8/7, using his new two metre halo and MRF-240 amplifier, best contacts were:

21/7 2210 Ron VK3AFW 5x3 Coach Rd Hill, Yallourn, 110 km.

22/7 0745 Max VK3TMP 5x9 Bunyip/Pakenham, 53 km.

23/7 2225 David VK3AUU 5x3 Sydenham/Beveridge, 110/112 km.

25/7 1045 Max VK3TMP 5x9 Wongong-Bulleen, 101/55 km.

30/7 0220 David VK3AUU 5x1 10 km north of Seymour, 155 km.

30/7 2223 Ron VK3AFW 5x9-5x1 Bacchus Marsh - 5 km south of Creswick, up to 111 km.

30/7 0307 David VK3AUU 5x1 2 km south of Clunes, 205 km. 30/7 0030 David VK3AUU 5x1 Maryborough, 222 km.

1/8 0940 Bob VK3AJN 5x3 Hughes Creek Hill, 119 km.

2/8 2210 Darryl VK3KLN 5x5 Hughes Creek Hill, 114 km.

2/8 2212 Max VK3TMP/P Port Arlington 5x1 Hughes Creek Hill, 144 km.

Mixed in with these were numerous contacts with VK3s AFW, TMP, AUU, and more. Better results came when the halo was mounted 1/2 wavelength above the roof, rather than the usual 1/4 wavelength.

"I went portable on Mt Tassie between 2230 and 2310 on 9/8. While there I worked VK3XRS Bairnsdale 5x1, VK3BWT Murrumbidgee 5x2, VK1BG Canberra 5x4, VK2ZAB Berowra Heights 5x2, and VK3ZXR Somerville 5x3. All when using the

five element NBS Yagi and 20 watts.

"When in Cobram I met Darryl VK3KLN; at his shack he demonstrated some of the many radio related computer programs he has, including one for scaling DL6WU Yagis. He is now on air with a 10 element! Also spoke with Len VK3BMY, who asked me to spread the word to the Melbourne VHFers that the Shepparton Club hold an SSB net on 144.1 each Wednesday night at 0930. He says anyone interested in joining in would be very welcome." [Why use the calling frequency for a net? ... VK5LP].

"Finally, I've been slowly working on my portable set-up. My current 2 m set-up uses a five element NBS Yagi with the FT-290R. The larger set-up, being built at the moment, will consist of a pair of 10 element DL6WUs on 2 m, a 15 el DL6WU on 70 cm, and either a dipole or 2 el on 6 m. 23 cm needs both antenna and transceiver/transverter! 10 GHz is on its way, in fact, it's further advanced than 23 cm! 10 GHz bits are 'on order', courtesy Alan VK3XPD."

Microwave News

Emil W3EP in his September 1997 *QST* column *The World Above 50 MHz* reports a new 10 GHz ATV DX Record. He says: *"Last September's column had details of a 592 km 10 GHz television contact between EA/HB9AFO and TK/F1JSR. The same pair have recently extended that distance by more than 100 km to 701 km.*

"F1JSR used 110 W and a 0.6 metre dish, while HB9AFO had just 1 W into a 1 metre dish. Liaison was established on 80, 40, and 2 metres as conditions allowed. Their exploits have inspired several other French and Spanish stations to try 10 GHz operations."

New Microwave DX Record

"Congratulations to WA6EXV and K6OW for setting a new American 24 GHz distance record of 267 km. Both stations used 100 mW FM Gunn diode transmitters to two foot dishes on mountain tops in southern California. WA6EXV (DM06w) was at Walts Point and K6OW (DM14kf) on Heaps Peak for the contact, made on the morning of 5 July. The existing record of 256 km has stood since 1992." (Thanks to the San Bernardino Microwave Society Newsletter.)

John VK3KWA from FTAC has sent a whole series of new microwave record claims which he has approved. They are:

3300 - 3600 MHz
VK2 VK3XPD/2 VK5DK/4 07/08/97 246.5 km
VK3ZQB/2 VK5NC/4
VK4 VK3XPD/2 VK5DK/4 07/08/97 246.5 km
VK3ZQB/2 VK5NC/4
5650 - 5850 MHz
VK2 VK3XPD/2 VK5DK/4 07/08/97 246.5 km

VK3ZQB/2 VK5NC/4
VK4 VK3XPD/2 VK5DK/4 07/08/97 246.5 km
VK3ZQB/2 VK5NC/4
10.0 - 10.5 GHz
VK2 VK3XPD/2 VK5DK/4 07/08/97 246.5 km
VK3ZQB/2 VK5NC/4
VK4 VK3XPD/2 VK5DK/4 07/08/97 246.5 km
VK3ZQB/2 VK5NC/4
24.0 - 24.25 GHz
VK2 VK3ZQB/2 VK3XPD/2 07/08/97 15.7 km
VK4 VK3XPD/2 VK5DK/4 07/08/97 30.0 km
VK3ZQB/4 VK5NC/4
24.0 - 24.25 GHz

VK6 and national record:
VK6KZ/6 VK6BHT/6 19/07/97 120.6 km
So there are some good starting points for others to better the distances.

There are seven additional claims pending for microwave contacts between VK5 and VK8, so that will mean further areas of investigation for those wishing to extend the claimed distances. In regard to the latter, **Alan VK3XPD** writes as follows about a recent expedition he and **David VK5KK** made to northern SA and the Northern Territory to secure the VK5/VK8 records.

They were immediately followed by an expedition to secure similar records in VK1, VK2 and VK4 (these claims are listed above), this latter journey involving **Colin VK5DK**, **Trevor VK5NC**, **Alan VK3XPD** and **Russell VK3ZQB**. These will be the subject of further writings later.

VK Distance Records - Old and New

Alan VK3XPD writes: *"Firstly, John VK3KWA, Chairman of FTAC, provided us with information in regard to relevant microwave records. All distances are in km, a hyphen (-) has been used to indicate an existing distance record that was deemed unlikely to be extended during the expeditions, the figures in brackets indicate our 'new' record which we achieved during the expeditions.*

State	VK8	VK4	VK2	VK1
70cm	nil(171)	-	-	-
23cm - 1.3 GHz	nil(41)	-	-	-
13cm - 2.4 GHz	nil(171)	224	160	nil(100)
9cm - 3.4 GHz	nil(171)	nil(245)	114(245)	nil(100)
6cm - 5.3 GHz	nil(171)	173(245)	144(245)	67(100)
3cm - 10 GHz	nil(171)	170(245)	218(245)	218
24 GHz	nil(5.9)	nil(31)	8(16.5)	nil(16.5)

"Most of the established distance records were considered by the group as suitable for extension without the benefit of 'enhanced' propagation (ie 'lift' as a result of prevailing weather conditions); however, lingering doubts remained about what was achievable for several of the longer distances. These concerns were later vindicated in the field with relatively poor signal strength reports being recorded for several contacts."

[Comment: The poor signal strength reports do not surprise me. In past years, on a number of occasions I have extensively toured the interior of Australia but only with two metres on board, finding coverage severely restricted due to what seems an unusual absorption of signals by the outback terrain, coupled with the lack of accessible high points to improve take off so reduce the absorption. I am sure that 40 metres would be the best band to use for liaison. VK5LP.]

The Lead-up to the Expedition

"Three weeks prior to the actual departure date, a 'get together' was arranged for a final shakedown of all the equipment. This meeting also ensured that all the necessary gear would actually fit into the cars! Colin and Trevor drove from Mt Gambier to Portland, I drove from Melbourne to Moonlight Heads (West of Cape Oway) and Russell simply trotted out to the local foreshore at Port Fairy. As expected, signal reports from Moonlight Heads over these relatively short, 'line of sight' water paths of 95 and 145 km were excellent. A few minor hiccups with several transverters were discovered but these were quickly resolved back in the shack.

"Having tested the gear and confirmed it would fit in the cars, we now waited for our respective departure dates to arrive. But one week prior to my departure I broke a bone in my left wrist, resulting in an x-ray and plaster cast, and some concerns about my ability to participate. However, I was able to continue albeit with some discomfort.

The Expedition Begins

"Saturday, 26 July – Trevor and Colin departed Mt Gambier for Toowoomba in separate cars at 0630 local, with Trevor taking his wife and mother-in-law to Toowoomba to stay with relatives. I headed west to meet David in Adelaide for our trip to VK8. The Mt William Repeater VK3RWZ was used to arrange morning tea at Ararat with Trevor and Colin who then continued north towards Queensland. I used the Crafrers repeater, VK5RAD, for liaison and directions to David's QTH at Salisbury Heights."

To be continued next month.

From the USA

Emil Pocock W3EP in QST's *The World Above 50 MHz* for October, reports that: "Six-metre operators in every part of the country complained that there were many days without sustained openings during July, yet there was probably E-skip somewhere every day. Double-hop conditions on July 1, 5, 7, 9, 10, 16, 17, 20, and 24 made coast-to-coast contacts possible.

6 Meter Transatlantic

"This year's 6 metre sporadic-E

transatlantic season has been nothing like the previous three years, but finally stations from New England to Georgia got some openings in mid-July. The best days were July 10, 12, 15, 16, and 17. Doug Shepard, VE1PZ (FN85), led off the transatlantic mayhem again on July 10 with SP2SGZ at 0920 and ended with 92 QSOs. It was also the first day in 1997 that US stations (mostly limited to New England) worked Europe. The opening seemed to favour northern Europe, with many PA, OZ, DL, and SM calls in the American logs. Bob Mobile, WA1OUB (FN43), made 37 contacts, 10 of them with Sweden.

"The July 12 opening was notable for the number of Polish stations that appeared in American logs, giving several DXCC holders a new country: W1RA (FN41) and WA1OUB (FN43) were working Europeans as early as 1030. VE1PZ started off late, but his first contact of the day at 1110 was SP6GZZ and tallied 51 QSOs by the time he was done. Included in Doug's dozen countries worked that morning were OK, SS, and HB. VE1ZZ (FN84) made the unique contact of the day at 1205 with YM7PA (KN91) in Turkey, 7730 km distant. It was VE1ZZ's first Asian contact and the first Turkey to North America QSO on the band.

"The last big opening of the month on July 17 produced the strongest signals, even if the big New England DXers did not shake out any new countries during the 2-hour period. W1RA ran off 62 contest-style contacts with EI, G, GW, PA, SM, and OZ in 90 minutes. Signals reached S9 +20 dB at times. WA1OUB worked 43 Europeans, including YU1EU (KN04) for his best DX of the day. KM1E made 10 contacts, including GM, G, GW, DL, OZ, and F.

"The Hawaii-to-California duct opened in early July. Chip Margelli, K7JA (DM03), heard the 144.170 KH6HME beacon for three days before finally working Hawaii on July 8. Southern Californians made numerous 2 metre contacts that day with KH6HME and the activity was heard as far north as K6FV, in the Bay area. Nothing was

reported on the higher bands."

VK2GJH Expedition in the Pacific

As reported previously, Jack VK2GJH started on a three-week expedition through the Gilbert and Ellis Islands on 16 July, using the calls T2D8JH, T3D8JH, and T33JH. JA1VOK reported that by the end of July, he had made 900 contacts on 6 metres into Japan, typically around 6000 km, or three sporadic E hops. In early August, he was to be on Banaba as 3D2JH.

Internet Six News

Courtesy Geoff G4JICD: On 1/8 at 2145, VK3OT worked VK3ANP on 50.125 over a 500 km tropo scatter path. Steve had already worked VK1RX at 2130 on 50.125 over an 800 km tropo path with signals 539.

ZL TO VK Es: ZL3TPY had a brief QSO with VK2YO at 0140, 52/51. At the same time 46.17 and 51.67 TV carriers and VK4RGG beacon were heard.

Closure

This month's notes have taken a long time to prepare for several reasons, details of which I need not bore you, but I seem to have made it after all!

Not much room for any further comments, except to say that our Es season is not far away. I wonder if we find a reduction in total coverage as seems to have been the case in the northern hemisphere. Does this indicate a start to the climb upwards for Cycle 23?

Closing with two thoughts for the month:

1. The young do not know enough to be prudent, and therefore they attempt the impossible – and achieve it, generation after generation, and

2. See everything, overlook a great deal, correct a little – Pope John XXIII.

73 from *The Voice by the Lake*.

*PO Box 169, Meningie SA 5264

Fax: 08 8575 1043

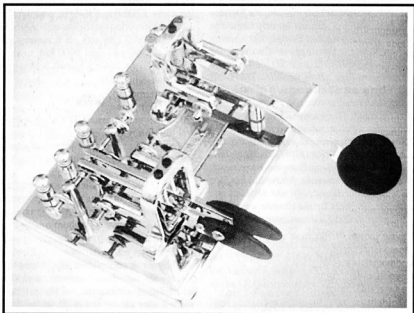
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What's New

Don Jackson VK3DBB* introduces new products of interest to radio amateurs

Vibroplex Double Key



For those Morse enthusiasts who never know whether to use a straight keyer or an iambic key, Vibroplex has announced its "Double Key". This device combines side by side keys in the one unit, the Vibroplex straight key and the Vibrokeyer iambic keyer mounted on the one massive steel base. The unit allows the operator to instantly switch from using an electronic keyer to the more personal touch of a straight key. It comes complete with the famous Vibroplex brass logo plate and a unique serial number.

In common with all Vibroplex keys, the machined parts of the double key are made in the USA on a digital milling machine providing great accuracy, and together with careful assembly, ensures long life.

Daycom Communications Pty Ltd are the sole agents for Vibroplex in Australia, and John Day would be pleased to provide further details of this unique keyer.

MFJ-224 2 Metre FM Analyser

The MFJ Company has released a 2 metre FM Analyser, their Model MFJ-224. With a frequency coverage of 143.5 to 148.5 MHz, the unit is capable of most types of performance measurements any discerning amateur would require.

In addition to metered functions, the MFJ-224 lets you visually analyse modulation

waveforms, and measure instantaneous-peak deviation by plugging into an oscilloscope. A headphone monitor circuit helps to tune in and easily identify signals. Amongst the



performance criteria it can handle are the following:-

- Evaluate antenna performance
- Detection of feedline faults
- Map repeater Field Strength
- Measure pre-amp gain
- Check and set deviation
- Analyse audio quality
- Band scan
- Tune transmitters and filters

It can even help track down hidden transmitters as in a fox hunt. The high resolution 60 dB RSSI display is stated to be amateur radio's most accurate S-meter.

The MFJ-224 comes in a sturdy black steel box, measuring about 95 x 48 x 190 mm, with the frequency and measurement control knobs protruding a little more. An SO-239 socket is provided for connection to your antenna system, with additional outlets for an oscilloscope and headphones.

For any amateur serious about performance in the 2 metre band, this instrument appears to be a sound investment to ensure the best results.

Contact John Day at Daycom Communications on 03 9543 6444 for further information.

MFJ-862 VHF/UHF SWR Wattmeter



For those amateurs requiring a SWR/Wattmeter for the VHF and lower UHF bands, the MFJ Company has released a new cross-needle SWR/Wattmeter for the 2 metre and 70 cm bands. The 220 MHz band is also catered for, but this is of little interest to Australian amateurs.

The meter is a similar unit to the MFJ-864, except that there is no coverage of the HF or 6 metre bands. It has two power ranges, 300 or 60 watts forward power and one tenth of that reverse, but both have been accurately factory calibrated to 100 W and 10 W respectively. Re-calibration to your own requirements is achieved through trim-pots easily accessible through the rear of the case.

Finished in an attractive two-tone (beige and black) colour scheme in a sturdy steel case measuring 150 x 58 x 65 mm, the unit should prove a useful piece of test equipment in your shack.

For further information about the MFJ-862, contact John Day at Daycom Communications Pty Ltd on 03 9543 6444

MFJ-864 HF/144/440 MHz SWR Wattmeter



The MFJ-864 is a cross-needle SWR Wattmeter which can be used for all amateur bands from 160 metres to 70 cm. The unit is

said to be capable of handling up to 300 W on high power and 60 W on low power in a forward direction, and one tenth of that in the reverse direction. Although the meter has been factory calibrated to 100 W and 10 W, there is provision to adjust the meter readings to your own requirements by easily accessible and clearly marked trim-pots.

As is usual with cross needle meters, one needle indicates output power, with the SWR read directly from the scale where the meter needles cross.

Two pairs of SO-239 sockets are provided, one pair for the 2 metre and 70 cm bands and the other for all frequencies up to 60 MHz, so

the one meter can be used for all bands. A circuit diagram is included in the clearly written seven page owner's manual.

Presented in a smart two tone (beige and black) steel case measuring about 185 x 65 x 60 mm, and with such a wide range of frequency coverage, the meter should prove to be a very useful accessory in your shack.

For further information about the MFJ-864, contact John Day at Daycom Communications Pty Ltd on 03 9543 6444

*55 Ryam Road, Pakenham VIC 3180

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WICEN News

David Horsfall VK2KFU*

Regular WICEN Column

As the activities of WICEN (in its various forms) are a major justification for the existence of amateur radio, it is hoped that this column will become a regular event; say, bi-monthly. Towards this end, I would like to solicit contributions from the other Divisions with an active (or possibly inactive) WICEN component.

I would like to collate items of WICEN interest from everywhere, and publicise them accordingly, so if nothing comes in, then all you're going to hear about is VK2 WICEN... E-mail is preferred, to dave@geac.com.au, or packet rider to VK2KFU/VK2KFU. NSW.AUS.OC (but be aware of forwarding delays in the packet network).

WICEN (NSW) Inc

Thredbo

Contrary to some reports, WICEN was indeed activated for the Thredbo disaster. WICEN assisted the Police with their Disaster Victim Registration (DVR) procedures, in both the registration and public enquiry aspects.

Tasks included computer entry of information from Thredbo, the taking of calls from the public regarding the victims, training of Police officers for these tasks, supervision of the DVR Co-ordination Centre, and liaison between the VRA operators and the Police Service. Some assistance was also provided to the State Emergency Operations Centre. WICEN personnel were involved day and night for the first three days of the operation.

AGM

The recent AGM was a popular affair, with 26 people in attendance. The meeting was preceded by an RCOs' meeting, at which Kevin Dawson VK2CKD and Malcolm Alexander VK2YVA were elected as Deputy State Co-ordinators 1 and 3 respectively.

Following this, the AGM began in earnest, and the following positions were filled: President, Dave Horsfall VK2KFU; Snr Vice President, Tony Farrow VK2TJF; Secretary, Frank Weber VK2XVJ; Treasurer, John Buxton VK2GJB; Committee, Ron Hanks VK2UR, Malcolm Alexander VK2YVA, Alan Whitmore VK2YYJ, and Richard Main VK2TPS. In the meantime, vacancies exist for Jnr Vice President and a Committee member.

The GRN demonstration (friend or foe?) attracted much interest, as did Simon Trotter's talk on RAYNET (the UK equivalent of WICEN) and the VK1 situation. Finally, the door-prizes were drawn from a hat by Simon Trotter. First prize, a \$50 gift voucher upon Dick Smith Electronics, was won by Frank Weber VK2XVJ; second prize, a \$20 gift voucher upon Dick Smith Electronics, was won by Richard Main VK2TPS; and third prize, a year's membership of WICEN, was won by Pauline Jones VK2GTB, whom we understand has decided to delay her retirement by a year. WICEN (NSW) Inc thanks Chris Ayres and Dick Smith Electronics for the generous donation of these vouchers.

Shahzada Horse Enduro

Finally, the recent Shahzada Horse Enduro, held in the St Albans area north-west of Sydney, sorely tested the expertise of WICEN personnel.

On Tuesday morning reports were received of a rider having fallen from her horse, and indications were that she suffered severe head injuries as well as broken bones. To cut a long story short, the Careflight helicopter, whilst perilously close to high-voltage power lines, winched her to safety. It transpired that she suffered from nothing worse than shock and severe bruising.

That afternoon, the portable repeater fell over, possibly as a result of the heavy use that

morning, and was not returned to service until a day or so later (this is a week-long event). On Wednesday, another rider fell, and severe concussion was suspected; however, it turned out that this behaviour was somewhat normal for the person involved...

If further information about WICEN (NSW) is required, please contact the acting State Co-ordinator, Alan Whitmore VK2YYJ, on 015-097-217.

*PO Box 257, Wahmunga NSW 2076

Internet e-mail: dave@geac.com.au

Packet: VK2KFU/VK2KFU.NSW.AUS.OC

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Update

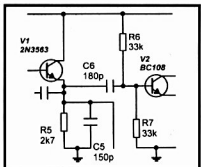


Fig 1

An RF Inductance Meter

(Published on pages 7-9 of the June 1997 issue of *Amateur Radio* magazine)

The author of this interesting article, Lloyd Butler VK5BR, advises that in Fig 2 on page 9, the unmarked capacitor joining the emitter of V1 to the base of V2 should be labelled C6, 180 pF (Fig 1 shows the amended relevant part of the circuit diagram).

It might be a good idea to correct your copy of the June 1997 issue of *Amateur Radio* now.

ar

Silent Keys

Due to space demands obituaries should be no longer than 200 words.

The WIA regrets to announce the recent passing of:-

R	BURTON	VK2EJE
R (RON)	MORRIS	VK3APM
D G	DUNN	VK3BDH
R N (ROD)	TORRINGTON	VK3TJ
E D	TREHARNE	VK5ED
C	WHALLEY	VK6KK

Peter Alexander VK2PA

The amateur radio fraternity recently learned, with sorrow, of the passing of one of its widely known and highly respected members, Peter Alfred Hunt Alexander VK2PA, aged 74, who became a silent key on 14 May 1997, passing away quietly in his home, "Nandari" at Rollands Plains, near Port Macquarie.

Peter was born in Chatswood, NSW, and spent his childhood in and around Sydney. He was the youngest, and only son, in a family of six. His father, Alfred Alexander, an operator with the Pacific Cable, taught Peter the art of Morse Telegraphy, which rapidly became Peter's second language.

Gaining his AOCIP with the call VK2PA at the age of 16, Peter began a long career in communications and electronics. He left apprenticeship with AWA, in order to join the RAAF in 1941, at the age of 18. He saw active service in Papua-New Guinea, in the Milne Bay area and on Groote Island. His specialities were telegraph operating, HF-DP, VHF-DP and Radar.

During his Groote Island service he was involved in aerial surveillance work, radioing valuable information on enemy aircraft movements back to allied headquarters in Darwin. Here he lived with the local Aboriginal people gaining tolerance and respect for indigenous people of Australia and the Pacific Region.

During the war years he met and married Ina Green who was serving in the WRANS.

On discharge from the RAAF in 1945, as a Sergeant, Peter remained in the RAAF reserve for the next eight years. He and Ina moved to Port Macquarie NSW, where he established a radio repair business serving the surrounding area with general repairs and battery charging facilities for the non-electrified communities.

He was a foundation member of the Port Macquarie RSL (of which he was later to become a Director), a foundation member of the Oxley Region Amateur Radio Club and office bearer for many years. Peter also served as Secretary and Public Officer of the

Port Macquarie branch of the Air Force Association.

In January 1949, along with three other well known amateurs of the day (Col Fisher VK2ASF, Crieff Retallie VK2XO, and Doug Gill VK2SH) Peter formed the nucleus of the original group who first organised the famous Urunga Convention. As is well known, this is the longest running annual amateur event in VK land.

His other interests included astronomy. As a foundation member of the Port Macquarie Astronomical Association (and its Secretary for several years beginning in 1961-62) he was directly involved in the establishment of the still-functioning Observatory on the hill overlooking the Town Beach and Break Wall at Port Macquarie.

One of Peter's outstanding community efforts was seen in the early 50s when disastrous floods in the region severed all public communication links with the area. Peter established and controlled an emergency radio communications network through his amateur station at Hill Street, Port Macquarie to link Sydney, Brisbane, and west to Narrabri and Forbes, to carry public messages.

In 1956, Peter and his family moved to Fiji, initially to work in Suva, but some months later in Vatukoula where he worked for the next four years in the Emperor Gold Mine. He was an active amateur throughout this period under the call sign VR2CD.

A DXpedition to the Tokelau Island Group, on board "Momo" (the refitted and renamed private yacht of the late Queen Salote of Tonga), saw Peter as part of the crew and operating team. The team headed by "Doc" Meredith, W5PQA, spent a week in the Tokelau providing the DX hunters with some rare contacts.

Returning to Port Macquarie, Peter established Alexander's TV, a business which he successfully operated until his retirement in 1976. The business still operates under its original name, but with new owners.

Peter and Ina retired to the country, first in nearby Ballengarra, and later to the property at Rollands Plains. Peter's amateur activities at "Nandari" involved an extensive "antenna farm" with modern equipment, working various modes, but predominately his first love, CW. He would sometimes stoop to "lip flapping" (as he dubbed voice communication) but most amateurs remember Peter for his dedication to, and superior expertise in, Morse telegraphy.

Peter also held other calls throughout the years. He retained VK2PA, but also held VR2DA, ZM7DA and G3OCM.

Peter's passing ended his 58 years of



The Oxley Region Amateur Radio Club perpetual trophy to commemorate the memory of Peter Alexander VK2PA

progressive communications activity. His contribution to this nation's security, its communities in which he lived and served, and the fraternity we all enjoy, has been most noteworthy. His dedication and steadfast approach to the preservation of amateur standards and his vigilance in helping keep the hands free of interlopers and sloppy operating practices were well known. Over the years, he encouraged and assisted many other aspiring amateurs to gain the knowledge and expertise required to qualify for the AOCF. Amateur radio has lost another one of its champions.

To commemorate the dedication that Peter gave to amateur radio and CW, the Oxley Region Amateur Radio Club has established a perpetual trophy, known as the "Peter Alexander Golden Key Award" to be awarded each year to the top VK station in the Commonwealth Contest. Peter won the "Golden Key Award" in 1980 for his proficiency in telegraphy operating. The

perpetual trophy will remain with the ORARC and will be engraved with the top VK call and name each year. The winner will receive a personal trophy engraved accordingly.

(Compiled by Trevor Thatcher VK2TT from an interview with Peter's family. Edited by David Pilley VK2AYD)

James Jessiman VK2MLV

It is with deep regret that I announce the passing of James Jessiman VK2MLV. He died in Wagga Base Hospital from pneumonia on Friday 25th July 1997 aged just 26.

James joined the Wagga Amateur Radio club some five or six years ago when we ran our NAOCP course from TAFE. He studied hard and received his licence soon after.

He was a quiet and unassuming fellow with a deep interest and knowledge of computers. We didn't see a lot of him after he gained his licence as his computing business began to take off but he came along whenever he could. He enjoyed all our club outings particularly Foxhunts and I am sure that it would not have been long before he would have been operating those in his own right. He was well liked by all of us.

Up until his death he held the office of Awards Manager as this was an area he felt he could contribute to within his fairly busy life. He further contributed in a big way after our photocopier became unrepairable by stepping in and offering his business machine and doing the copying and collating with his mother Robin, who also worked with him.

On many occasions we would ask James for advice on one computing matter or another and he would go out of his way to

assist. Nothing was ever too much difficulty for him nor was time of any consequence. That was just James.

This year, for all of these efforts, we awarded him the Phil Bowers Memorial Award for Outstanding Achievement. He passed away before he could be awarded it. He never knew.

To his family the members of the Wagga Radio Club extend their deepest sympathies. Vale James.

John Eyles VK2YW

Joe Ellis VK4AGL

The Sunshine Coast Amateur Radio Club and Amateur Radio has lost a great friend with the passing of Joe Ellis VK4AGL, on 5 May 1997.

Joe was born in Lismore on 18 April 1921, and at age 14 as VK2GL became one of the youngest amateurs in Australia. After attending the Marconi School of Wireless he qualified as a First Class Commercial Operator and went to sea as a ships radio operator. He survived two sinkings due to enemy action during the war years. He then flew with Qantas as a wireless operator for over 20 years until his retirement.

In 1975 Joe and family moved from Sydney to Burnside, Nambour, where he operated as VK4AGL. A keen DX operator, Joe kept abreast of technology and was active on all bands and modes. His helpful advice on air and ready wit will be sadly missed by all.

He is survived by his wife Jean, and sons Andrew and Matthew.

Ron Marschke VK4GZ

President

Sunshine Coast Amateur Radio Club Inc
ar

QSP News

Chinese Contact With US Spacecraft

David Waring VK3ANP recently returned from a holiday in China. While he was there, the *China Daily*, a Government English language newspaper supplied to all tourist hotels, carried an amateur radio story on page 2 of the issue for 16 July. David sent a copy to us.

Briefly, students of the Middle School attached to Qinghua University in Beijing were able to converse as part of SAREX (Shuttle Amateur Radio Experiment) with American astronauts aboard the shuttle Columbia. Because the US and China have not yet signed an agreement permitting direct amateur communication between them, the signals were relayed via Australia. The Beijing station was BY1QH.

It is interesting to note that amateur radio can be so newsworthy as to justify several hundred words plus a photo three columns wide in a newspaper such as the *China Daily*.

Editor's Comment

Continued from page 2

And finally, how do you write the date? Particularly when all in figures? We adhere to the British standard of day, month, year in that sequence. For example, I am writing this on 31-08-97 (the day of the death of the Princess of Wales). American custom, though, is to put the month first, so it becomes August 31 1997 or 08-31-97. And some computer programs expect (logically) that dates should be in the same sequence as other numbers, ie the most significant digit at the left, so giving 97-08-31.

Personally I prefer to spell out the month in abbreviated form, ie 31 Aug 97, but that's another variation. Nothing's simple, is it?

On another subject, you will be pleased to see that we have two new columns this month, on ARDF and WICEN. They are managed by VK4BRG and VK2KFU, both of whom need your contributions.

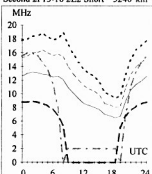
Bill Rice VK3ABP

Editor

Adelaide-Auckland

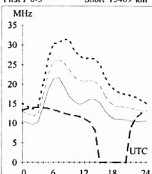
104

Second 2F13-18 2E2 Short 3240 km

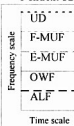
**Brisbane-Budapest**

312

First F 0-5 Short 15469 km

**HF Predictions**

Evan Jarman VK3ANI

T Index: 32

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits. This also indicates a possibility of communication (percentage).

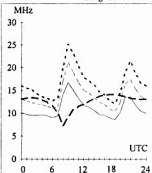
The frequencies, identified in the legend, are:-
 Upper Decile (F-layer, 10%)
 F-layer Maximum Usable Frequency (50%)
 E-layer Maximum Usable Frequency
 Optimum Working Frequency (F-layer, 90%)
 Absorption Limiting Frequency

The predictions were made with the Ionospheric Prediction Service program, ASAP V3.2. The T index used is shown above the legend. The Australian terminal azimuth, path and propagation mode are also given for each circuit.

Adelaide-London

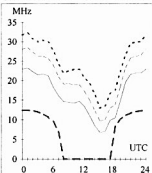
132

First F 0-5 Long 23755 km

**Brisbane-Honolulu**

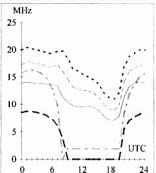
49

Second 3F5-9 3E0 Short 7569 km

**Canberra-Honiara**

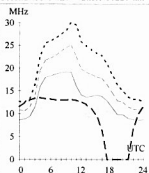
23

Second 2F14-19 2E3 Short 3070 km

**Darwin-Capetown**

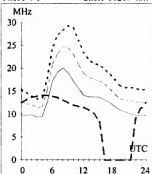
231

Second 4F3-6 4E0 Short 11220 km

**Adelaide-London**

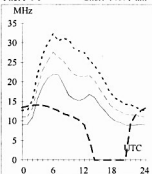
312

Short 16269 km

**Brisbane-Moscow**

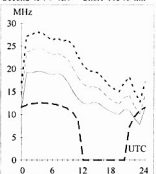
321

First F 0-5 Short 14071 km

**Canberra-New Delhi**

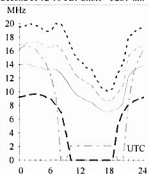
303

Second 4F4-9 4E0 Short 10348 km

**Darwin-Christchurch**

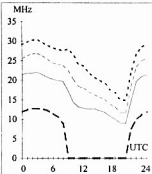
139

Second 3F12-16 3E1 Short 5281 km

**Adelaide-Tokyo**

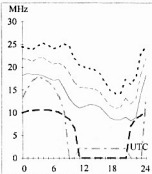
1

Second 3F4-9 3E0 Short 7855 km

**Brisbane-Singapore**

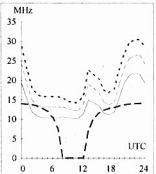
293

Second 3F9-14 3E0 Short 6147 km

**Canberra-Washington**

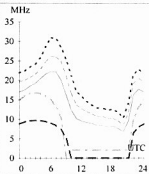
70

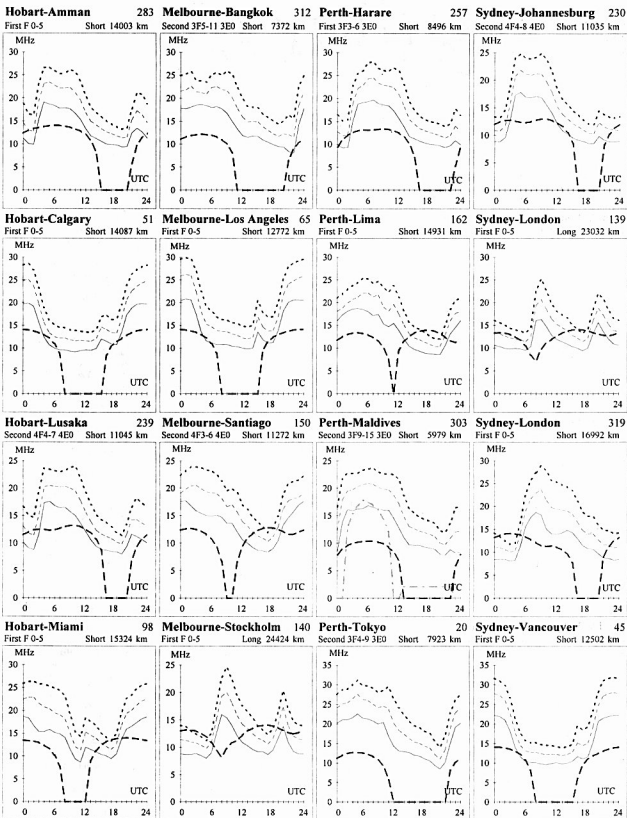
First F 0-5 Short 15939 km

**Darwin-Osaka**

5

Second 3F11-19 3F2 Short 5263 km





HAMADS

- Hamads may be submitted on the form on the reverse side of the *Amateur Radio* address flysheet. Please use your latest flysheet where possible.
- Please submit separate forms for **For Sale** and **Wanted** items, and be sure to include your name, address and telephone number (including STD code) if you do not use the form on the back of the *Amateur Radio* address flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment offered for sale should be included in the Hamad.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising (Trade Hamads) are pre-payable at \$25.00 for four lines (twenty words), plus \$2.25 per line (or part thereof), with a minimum charge of \$25.00. Cheques are to be made out to: WIA Hamads.
- Copy should be typed or in block letters, and be received by the deadlines shown on page 1 of each issue of *Amateur Radio*, at:

Postal: 3 Tamar Court, Mentone VIC 3194
 Fax: (03) 9584 8928
 E-mail: vk3br@c031.aone.net.au

TRADE ADS

- **AMIDON FERROMAGNETIC CORES:** For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). Agencies at: Webb Electronics, Albury; Assoc TV Service, Hobart; Truscotts Electronic World, Melbourne and Mildura; Alpha Tango Products, Perth; Haven Electronics, Nowra; and WIA Equipment Supplies, Adelaide.
- **WEATHER FAX programs** for IBM XT/ATs *** "RADFAX2" \$35.00, is a high resolution short-wave weather fax, Morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder. *** "SATFAX" \$45.00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver. *** "MAXISAT" \$75.00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add \$3.00 postage. ONLY from M Delahunt, 42 Villiers St, New Farm QLD 4005. Ph 07 358 2785.
- **HAM LOG v3.1** - Acclaimed internationally as the best IBM logging program. Review samples....AR: "Recommend it to anyone". The Canadian Amateur: "Beyond this reviewer's ability to do it justice. I cannot find anything to improve on. A breakthrough of computer technology". ARA: "Brilliant". Simple to use with

full help, the professional HAM LOG is immensely popular (now in its 5th year), with many useful, superb features. Just \$59 (+\$5 P & P), with a 90 page manual. Special 5 hour Internet offer. Demos, brochures available. Robin Gandevia VK2VYN, 02 369 2008 BH, fax 02 369 3069. Internet address rhg@ozemail.com.au.

FOR SALE NSW

- Deceased estate items held by the VK2 Division: **Kenwood TS-520S**, s/n H03-1629-04, complete with DG-5 Digital Display, s/n 730575, \$600. **Kenwood PS-430** power supply, \$350. **Kenwood TS-820** (no power cord), s/n N672629, \$450. **Kenwood TS-930S** (recently serviced), excellent condn, s/n 3060601, \$1300. **Yaesu FT-107M**, with 27 MHz marine xtals, s/n OMO80612, as new, \$600. **Yaesu FT-107ATU**, WARC bands, s/n D2873, as new, \$150. **Yaesu FT-101Z**, WARC bands, s/n 0N230962, \$500. **Yaesu FT-101Z**, s/n 9C020038, with dynamic mic YD-148, \$350. **Yaesu FRG-7**, s/n 120J310900, \$200. Many of the above checked by manufacturer; most in good to excellent condn, reasonable offers considered. WIA VK2 Office, 02 9689 2417 (1100 to 1400 Mon - Fri), fax 02 9633 1525 anytime.
- **Kenwood TS-690SAT** HF/50 MHz txcvr, \$1750 ONO. **Kenwood TS-440SAT** HF txcvr, \$1400 ONO. Both Kenwoods in excellent condn with all filters and manuals. **Kenwood TM-2550 2 m FM 50 W txcvr**, \$300. **Alinco DJF1T 2 m hand-held**, accessories, \$200. **DSP-9**, \$200. **TNC 320**, \$150. **Philips Condor 70 cm FM**, OK for 9600/1200 baud packet, \$250. **IBM computer**, excellent for

packet, \$100 ONO. Frank VK2EKY, QTHR, 02 9896 5859.

- **Emotator rotator** with illuminated control box; **7 m telescopic mast**, all guys and attachments, ready to install, in very good condn, \$285. Ernest VK2BED, 02 9532 0175.
- **Hy-Gain DB10/15** (10 & 15 m) 3 element trap beam, including manual, very good condn, \$185 ONO. Art VK2AS, QTHR, 02 9416 7784.
- **Yaesu FT-290R II 2 m all mode txcvr**, \$350. **FT-690R II 6 m all mode txcvr**, \$330. **FT-757GX HF txcvr** with **FC-757AT ATU**, \$850 the pair. **Kenwood TM2570A 2 m 70 W mobile txcvr**, \$250. **Yaesu FT-26 2 m hheld**, \$230. **Uniden UHF CB txcvr**, \$225. **2 m and 6 m afterburners** to 100 W, \$150 each. No reasonable offer refused. R E Taylor VK2AOE, QTHR, 02 9449 6364.
- **Yaesu FT-101E**, VGC, spare set final tubes, desk mic, hand mic, manual, \$500. **KW103 1 kW SWR/power meter**, \$150. **Yaesu FT-290R II txcvr**, PA3 car adapter/charger, MH-12 spkr/mic, unused, \$350. **Palomar TX200** linear amp, \$150. **6 only 6JS6 tubes**, \$50 each. **ATU roller inductor**, home brew, \$100. **Yaesu FV-901** scan VFO, \$200. Peter VK2DBI, QTHR, 02 6367 5095.
- **Satfax weather satellite receiving system** including Maxisat software and Satfax interface card for PC, \$80. H H Leykam VK2HL, QTHR, 02 9971 9795.
- **Yaesu FT-757 HF** mobile txcvr, s/n 5F180131, with cradle, computer interface and manuals. **Yaesu FT-480 2 m all mode mobile txcvr**, s/n 2F180661, with cradle and manuals. Make an offer. David VK2CTL, 02 9234 7970 (BH).
- **Command b'cast receiver BC-946-B**, pristine condn, \$230. **Fluke 207-3 VLF** receiver comparator with chart recorder, GWO, \$350. **Lavoie ANURM-81** HF frequency meter, 100 - 500 MHz, \$250. **Price and Edwards NATO keys**, new, \$100. Brian VK2GCE, QTHR, 02 9545 2650.
- **Kenwood TS-430S** txcvr, with both manuals, serviced by Kenwood, \$900. **Kenwood SM-220** station monitor, bandscope, with manuals, \$350. **Kenwood TR-8400 UHF FM** mobile, with manuals, \$300. Packing and postage extra. John VK2FUR, 02 4625 1812.
- Deceased estate VK2HH, **20-15-10 m 3 element beam antenna**, **KR4000 rotator** and remote controller, connecting cable, mounted on **telescopic tower** of pipe design, fitted with hand winch and tilting base. Purchaser to dismantle. Located in Cronulla, \$550 ONO. Enquiries to George VK2UN, 02 4384 2783.

FOR SALE VIC

- **Icom IC-707 HF** txcvr, in new condn, little used, \$1200 (list price \$2000). **Yaesu FT-757GX II HF txcvr**, mint condn, little used by original owner, \$950. **Max VK3GMM**, 03 5985 2671.
- **Yaesu High Frequency Module** (21 - 24 - 28 MHz), complete with instructions for a FT726R,

\$150. John VK3ACA, QTHR, 03 9306 2069, jadcock@melbpc.org.au.

• **Lunar Electronics 2M4-40P** 2 m linear amp, \$50. **AEA Pakratt 232 Model PK232**, complete with manuals and program, \$250. **Cushcraft ATB-34** 20-15-10 m Yagi antenna, \$200. John VK3FH, QTHR, 03 5986 1592.

• **HF linear amplifier, GC**, with extra pair new 811A valves, \$300. **German SCS Pactor, RTTY**, Amort unit, \$300. **IC-2GXAT** 2 m hand-held, EC, \$350. **IC-2A** with two batteries, 12 V DC adapter, \$100. **Paccomm Tiny 2** packet TNC, \$150. **Transformer**, 2-3 kV, David VK3AZM, QTHR, 03 5251 3783.

• **Icom IC-735 HF** txcvr, complete with mic and mobile bracket, excellent condn in original box, s/n 36304193, \$975. Rob VK3JE, 02 6027 1077.

• **Frankston South**, Older style 2 bedroom fibro house for sale, well maintained, ducted heating, air conditioning throughout, land 800 m², two street entrances, ideal for ham, includes Nally tower, TH6DXX, council approved three unit site, \$129,000 negotiable. VK3CLV, 03 9787 4915.

• **Kenwood TS-940S**, Shure 444D mic, \$2000. **Drake L4B** linear amp and PSU, \$1000. **Gem quad antenna**, 4 el, 6 bands, Ameriton remote switching, \$800. **Kenwood SW-2000** power/SWR meter, \$150. **Digital weather station**, \$300. **Yaesu world clock**, \$50. **Nally tower**, \$500. **Alinco DM130MVZ** power supply, \$200. **Kenwood mobile antenna set**, \$150. **KR250 rotator**, \$200. VK3DKC, QTHR, 03 9879 9099.

• **Kenwood TS-520S**, complete with crystals for 4 bands, mic, headphones, manual, s/n 810719, \$400. **Kenwood TM-241A** 2 m FM txcvr, complete with co-linear 5/8 Diamond ant and mast, coax, s/n 27024118, \$650. Noel VK3DPB, 03 9306 9231.

• **Icom IC-7000** wide-band receiver with handbook, covers 25-1300 MHz, all modes (AM, CW, SSB and both wide and narrow FM), excellent condn, \$900 ONO. Harold VK3AFQ, QTHR, 03 9596 2414.

• **Yaesu FT-221** 2 m txcvr, s/n 5K302182, AC/DC, power cables, manuals including WKSP manual, good condn, no further use, \$500 ONO. Max VK3AFF, QTHR, 02 6072 5217, fax 02 6072 5215.

FOR SALE SA

• **Yaesu FT-650** all mode 6 m txcvr, 100 W out, handbook and original box, as new, \$1000. **Kenwood TS-50 HF** txcvr, excellent condn, \$1000. **Yaesu FT-900** with remote kit, as new, \$1200. Gary VK5DX, 08 8370 9196 (AH), 0419 815 479 (BH).

• **Icom IC-706** mobile txcvr, HF plus 6 and 2 m, all mode, s/n 01547, immaculate condn in original carton, \$1700 ONO. John VK5KBE, QTHR, 08 8250 7259.

• Deceased estate VK5YI. **Kenwood TS-830S**, \$600. **Yaesu FT-707**, \$600. **Yaesu FC-707** ATU, \$200. **Yaesu FT-230R**, \$150. **Yaesu FT-200**, \$100. **Kenwood TR-9000**, \$400. **Hypower HL-82V** 2 m, \$150. **Tokyo Hypower HC-500A**, \$100. **20 A PSU**, \$50. **Revex W502**, \$60. **KR400** rotator and mast, \$350. Mikes, switches, etc. Sell the lot for \$2000. Graeme Stretton, 088532 4757.

FOR SALE WA

• Expressions of interest are invited for the

purchase of a **large brick and tile home in a prime DX location in City Beach, WA**. The antennas, mast and internal cabling goes with it. A 3 bedroom home, large kitchen, lounge/dining room, sundeck, TV/games room, large bathroom with adjacent toilet, laundry with adjoining shower are the improvements. A radio room and workshop are included underneath the residence on level with carport suitable for three cars. Antennas are duo-band 10/15 3 el Yagi above a mono-band 4 el Yagi on a 26 ft boom. Rotator is a current Create model with worm drive, a heavy duty unit at top of tower. The guyed tower is a 4 telescopic section, hand winched to lower from full height to 14 ft enabling service from roof height. Collins and Drake equipment not included but all cavity wall and ceiling wiring to antenna and rotator is intact (all wired with house construction in 1965). Top of the ARRL Honour Roll was achieved from this QTH. Home is Corser built and designed by Peter Overman. Present Government building controls would preclude this tower installation anywhere west or north of the City of Perth. Three phase power garden irrigation is shared with three neighbours. Jim VK6RU, QTHR, 08 9385 9664.

FOR SALE TAS

• **Yaesu FT-230R** 25 W 2 m mobile txcvr, s/n 220103, \$250. **Icom IC2A** 1.5 W 2 m hand-held, 2 battery packs, s/n 29046, \$150. Andrew VK7XR, 0419 504 376, 03 6424 8322 (BH).

WANTED NSW

• **Plessey C45** accessories - carrier 82, tray, junction boxes J2, R, B, ARB tuning head, control box and connectors. Brian VK2GCE, QTHR, 02 9545 2650.

WANTED VIC

• **Kingsley AR7** receiver, in any condn, but must be in green Army type case with slots for spare coils. The receiver needs only to be externally complete as it is solely required for a static Army Signals Museum display. John Stacpoole, 03 9859 4743.

• **2C39 triodes** type 7289. Roger VK3XRS, 03 5152 1163.

Circuit for Swan 350C. David VK3AZM, QTHR, 03 5251 3783.

• **TMK condenser checker handbook** or copy. David VK3ANP, QTHR, 03 5727 6218.

Any information and circuit of Kyokuto VHF FM144-10SXR txcvr, will pay all costs. Charlie VK3DCS, QTHR, 03 5331 7425.

WANTED SA

• **Yaesu FT-726**, or 6 m module for same. Would consider mono-band txcvrs of similar vintage, eg **FT-680**, **FT-480**, **TS-700**, etc. Also looking for **valve communications receiver**. Eddystone or Collins, etc. David VK5AXW, 08 8370 1066 (BH), 08 8370 9569 (AH).

MISCELLANEOUS

• **The WIA QSL Collection** (now Federal) requires QSLs. All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose VIC 3765, tel 03 9728 5350.

WIA MORSE PRACTICE TRANSMISSIONS

VK2BW1	Nightly at 2000 local on 3550 kHz
VK2RCW	Continuous on 3699 kHz and 144.950 MHz 5 wpm, 8 wpm, 12 wpm
VK3COD	Nightly (weekdays) at 1030 UTC on 28.340 MHz and 147.425 MHz
VK3RCW	Continuous on 145.650 MHz, 5 wpm, 10 wpm
VK4WIT	Monday at 0930 UTC on 3535 kHz
VK4WCH	Wednesday at 1000 UTC on 3535 kHz
VK4AV	Thursday at 0930 UTC on 3535 kHz
VK4WIS	Sunday at 0930 UTC on 3535 kHz
VK5AW1	Nightly at 2030 local on 3550 kHz
VK5VF	Continuous on 145.650 MHz, 5 wpm to 12 wpm
VK6RCW	Continuous on 147.375 MHz, 3 wpm to 12 wpm
VK6WIA	Nightly (weekdays) at 2000 UTC on 3.555 MHz

WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

Division	Address	Officers	Weekly News Broadcasts	1997 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601	President Hugh Blemings Secretary John Wocner Treasurer Les Davey	VK1YYZ VK1ET VK1LD 3,570 MHz LSB, 146,950 MHz FM each Sunday evening commencing at 8.00 pm local time. The broadcast text is available on packet, on Internet as radio.amateur.misc newsgroup, and on the VK1 Home Page http://www.vk1.wia.ampr.org	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK2	NSW Division 109 Wigram St Parramatta NSW (PO Box 1066 Parramatta 2124) Phone 02 9689 2417 Freecall 1800 817 644 Fax 02 9633 1525	President Geoff McGrorey-Clark Secretary Eric Fossey Treasurer Eric Van De Weyer (Office hours Mon-Fri 11.00-14.00) Web: http://marconi.mpcpe.mq.edu.au/wia e-mail address: vk2wi@ozemail.com.au Packet BBS: VK2WI on 144.850 MHz	VK2EO VK2EY VK2KUR From VK2WI 1,845, 3,595, 7,146*, 10,125, 14,160, 24,950, 28,320, 29,120, 52,120, 52,525, 144,150, 147,000, 438,525, 1281,750 (* morning only) with relays to some of 18,120, 21,170, 584,750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup radio.amateur.misc , and on packet radio.	(F) \$69.00 (G) (S) \$56.00 (X) \$41.00
VK3	Victorian Division 402 Victory Boulevard Ashburton VIC 3147 Phone 03 9885 9261 Fax 03 9885 9298	President Jim Linton Secretary Barry Wilton Treasurer Rob Hailey (Office hours Tue & Thur 0830-1530) Web: http://www.tbssa.com.au/~wia/vic/	VK3PC VK3XV VK3NC VK3BWI broadcasts on the 1st Sunday of the month, starts 10.30 am. Primary frequencies 3,615 LSB, 7,085 LSB, and FM(R)s VK3BWL, 146,700, VK3RMM 147,250, VK3RWG 147,225(X) and 70 cm FM(R)s VK3ROU 438,225, and VK3RMU 438,075. Major news under call VK3WI on Victorian packet BBS and WIA VIC Web Site.	(F) \$75.00 (G) (S) \$61.00 (X) \$47.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone 074 96 4714	President Rodger Bingham Secretary Malcolm McIntosh Treasurer Bill Sebbens e-mail address: wiaq@brisbane.dialix.com.au	VK4HD VK4ZMM VK4XZ 1,825 MHz SSB, 3,605 MHz SSB, 7,118 MHz SSB, 14,342 MHz SSB, 28,400 MHz SSB, 29,220 MHz FM, 52,525 MHz FM, 146,700 MHz FM, 147,000 MHz FM, 438,525 MHz (Brisbane only), regional VHF/UHF repeaters at 0900 hrs Sunday. Repeated on 3,605 MHz SSB & 147,000 MHz FM, regional VHF/UHF repeaters at 1930 hrs EAST Monday. Broadcast news in text form on packet under WIAQ@VKNET.	(F) \$74.00 (G) (S) \$60.00 (X) \$46.00
VK5	South Australian Division 34 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone 08 8352 3428 Fax 08 8264 0463	President Ian Hunt Secretary Graham Wiseman Treasurer Joe Burford Web: http://www.vk5wia.ampr.org/	VK5QX VK5EU VK5UJ 1827 kHz AM, 3,550 MHz LSB, 7,095 AM, 14,175 USB, 28,470 USB, 53,100 FM, 147,000 FM Adelaide, 146,700 FM Mid North, 146,800 FM Mildura, 146,825 FM Barossa Valley, 146,900 FM South East, 146,925 FM Central North, 147,825 FM Gawler, 438,425 FM Barossa Valley, 438,475 FM Adelaide North, ATV Ch 35 579,250 Adelaide. (NT) 3,555 USB, 7,065 USB, 10,125 USB, 146,700 FM, 0900 hrs Sunday, 3,565 MHz and 146,675 MHz FM Adelaide, 1930 hrs Monday.	(F) \$75.00 (G) (S) \$61.00 (X) \$47.00
VK6	West Australian Division PO Box 10 West Perth WA 6872 Phone 09 351 8873	President Wally Howse Secretary Christine Bastin Treasurer Bruce Hedland-Thomas Web: http://www.laroc.com.au/~vk6wia	VK6KZ VK6ZLZ VK6OO 146,700 FM(R) Perth, at 0930 hrs Sunday, relayed on 1,825, 3,560, 7,075, 14,116, 14,175, 21,185, 29,680 FM, 50,150 and 438,525 MHz. Country relays 3,582, 147,350(R) Busseton and 146,900(R) Mt William (Bunbury). Broadcast repeated on 146,700 at 1900 hrs Sunday, relayed on 1,865, 3,563 and 438,525 MHz; country relays on 146,350 and 146,900 MHz.	(F) \$62.00 (G) (S) \$54.00 (X) \$30.00
VK7	Tasmanian Division PO Box 271 Riverside TAS 7250 Phone 03 6327 2096 Fax 03 6327 1738	President Ron Churcher Secretary Barry Hill Treasurer Mike Jenner	VK7RN VK7BE VK7FB 146,700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147,000 (VK7RAA), 146,725 (VK7RNE), 146,825 (VK7RMD), 3,570, 7,090, 14,130, 52,100, 144,150 (Hobart) Repeated Tues 3.590 at 1930 hrs.	(F) \$74.00 (G) (S) \$60.00 (X) \$46.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).			

Note: All times are local. All frequencies MHz.

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